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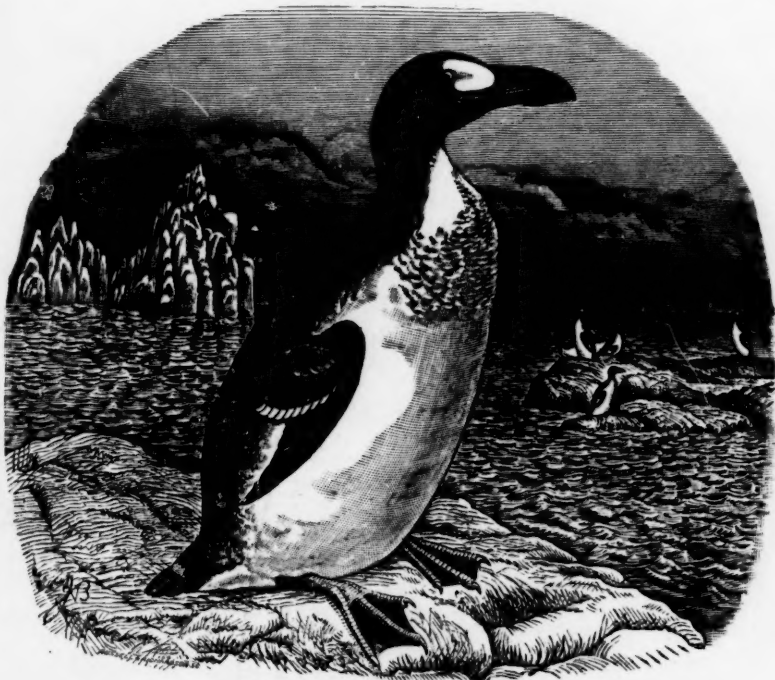
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EDITOR

J. A. ALLEN

ASSOCIATE EDITOR

FRANK M. CHAPMAN



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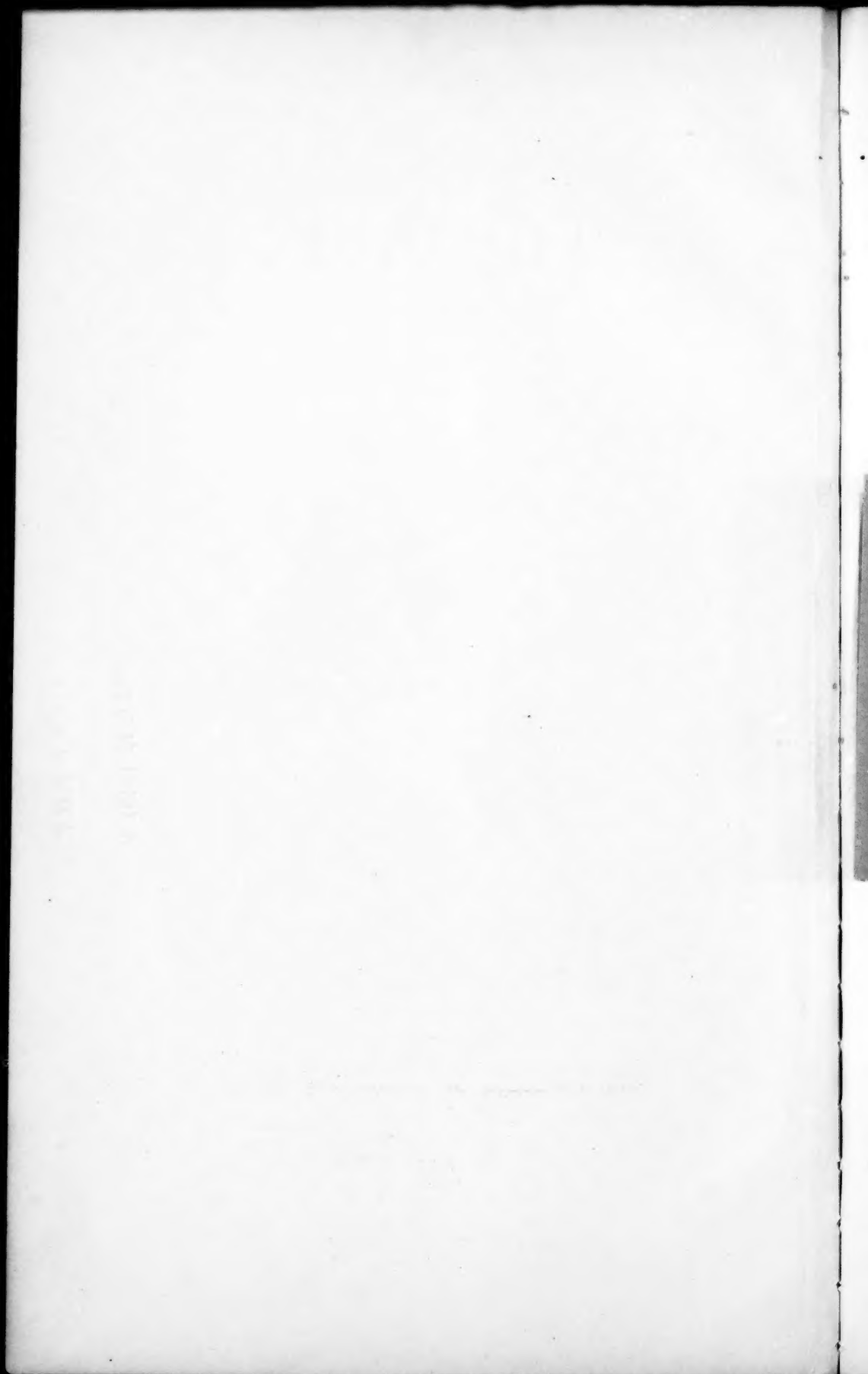
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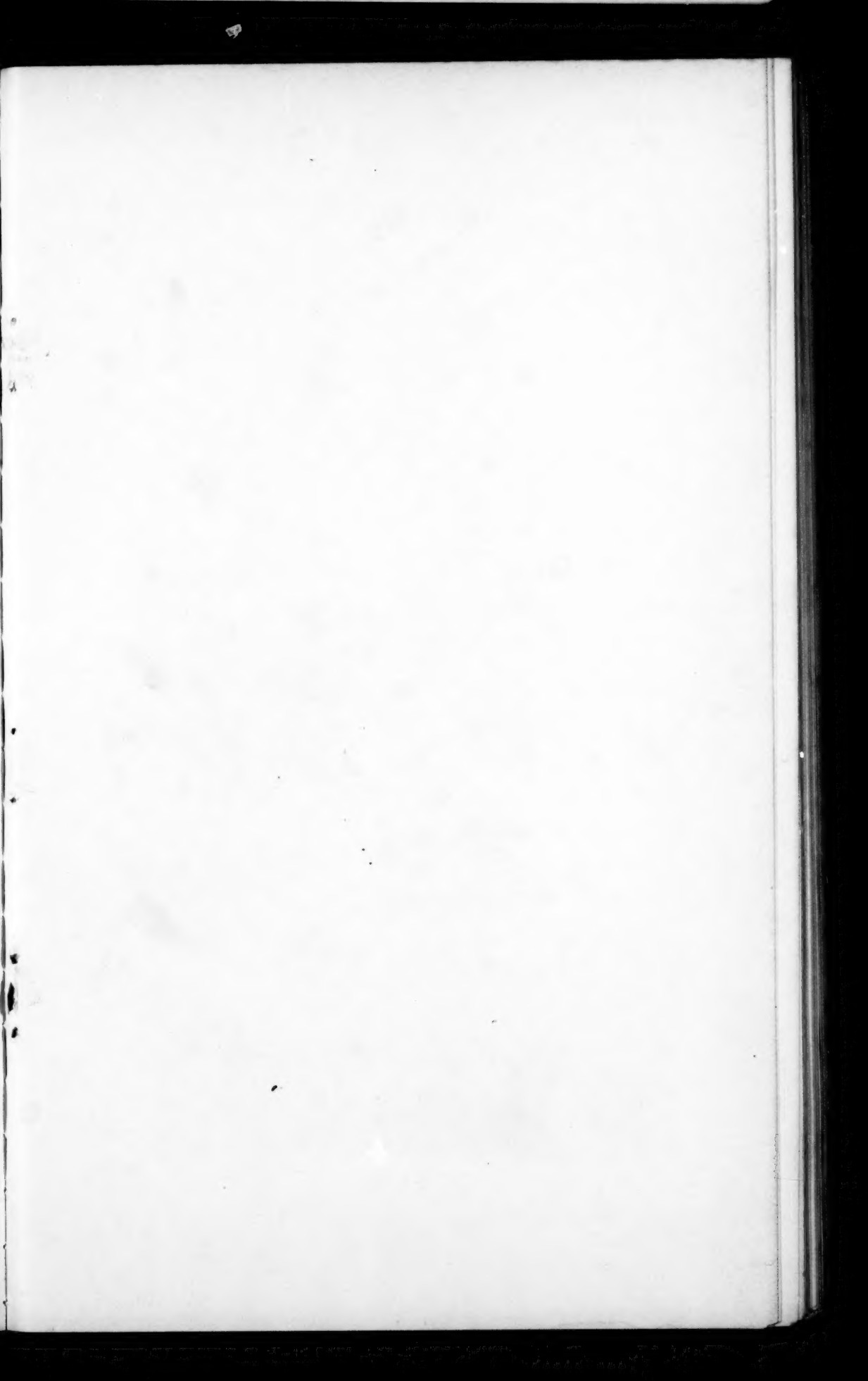
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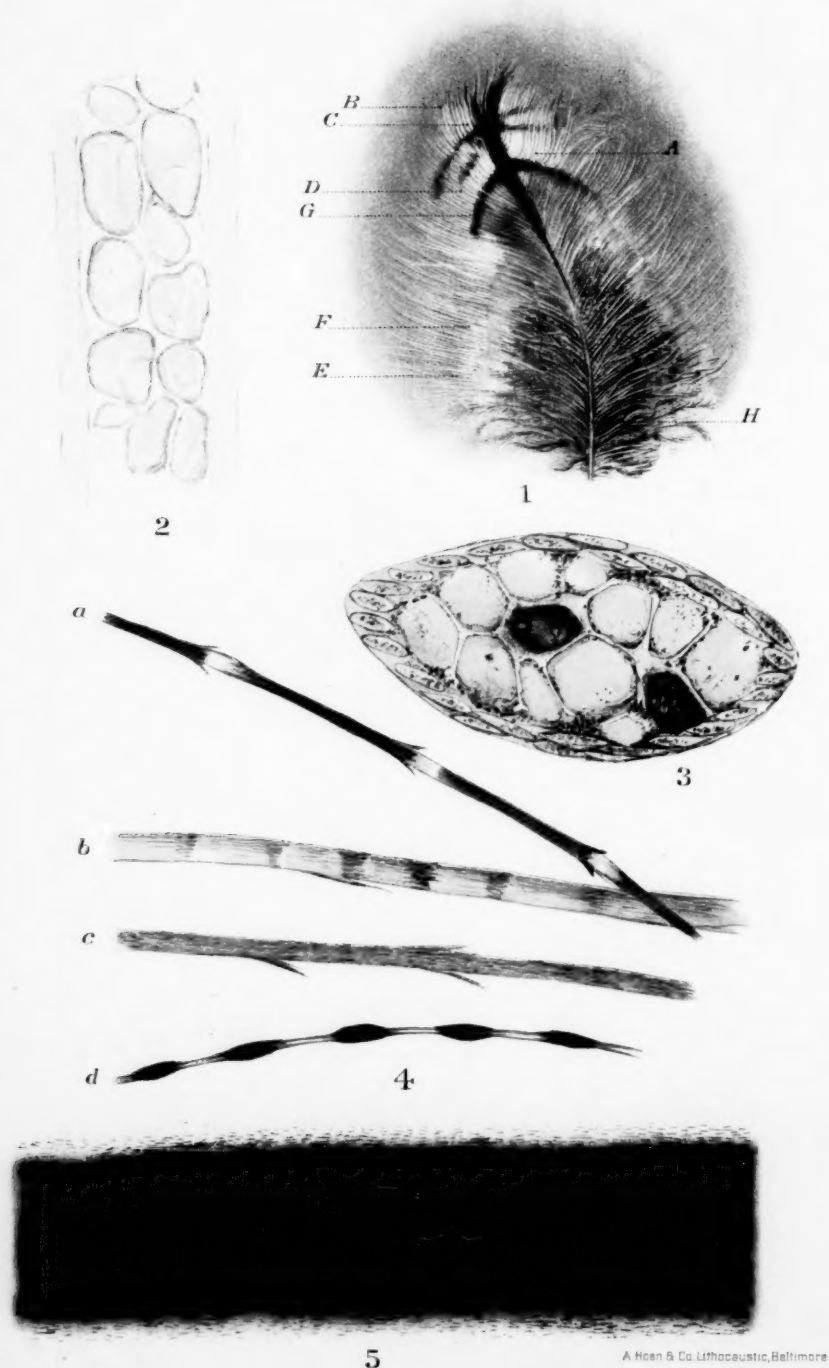
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A. Hoen & Co. Lithocautic, Baltimore

INDIVIDUAL DICHROMATISM
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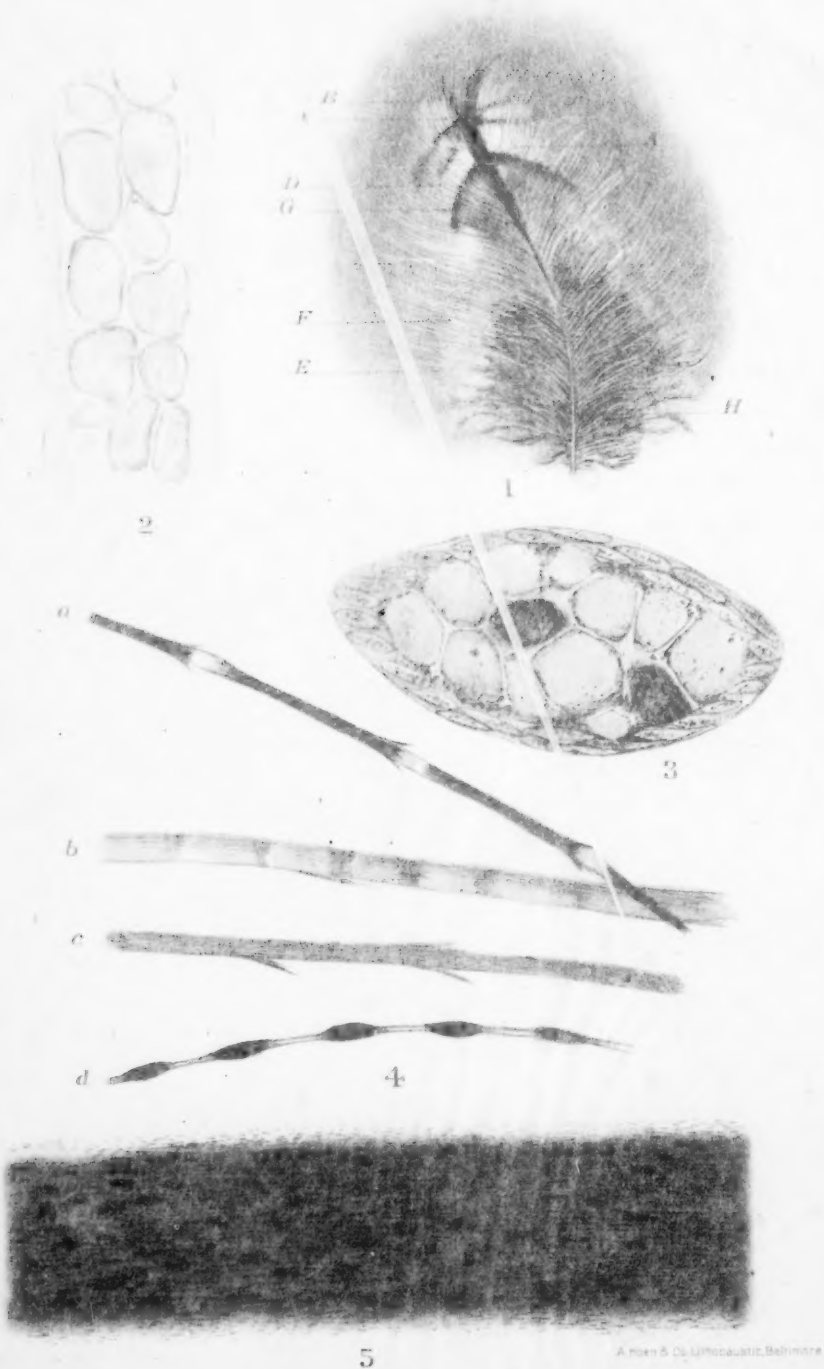
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BY DANIEL E. OWEN.

JUNE 26, 1896, while exploring a small patch of mixed growth in search of birds, I fell in with a young Hermit Thrush, accompanied by its parents. The young bird was just from the nest and had such ill control of its faculties and muscles that, ultimately, after a laborious flight of seven or eight yards, it alighted at my very feet. I captured the youngster, by dropping my hat over it, and having tied the bird, loosely, in my handkerchief, carried it home in my collecting basket. For the next five weeks, the Thrush was my constant study companion, and during this period discovered so many attractive traits that when I came to restore my captive to its native wood, the parting was, to one of us, the occasion of real regret.

I domiciled my little orphan in a large, old-fashioned canary cage which was allowed to stand, most of the time, on the sill of an open window. At first the Thrush objected to this durance vile, expressing its distaste by ejaculatory 'peeps' which, June 28, attracted to the roof, near the window, a sympathetic Chipping Sparrow, and caused a Robin in a neighboring tree to sound a loquacious and protracted alarm. But the imprisoned bird



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A. HEN & CO. LITHOGRAPHS, BALTIMORE

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seemed soon to realize that remonstrance was of no avail, and by June 29 its impatience had given way to a philosophic serenity and composure that rarely were disturbed during the remainder of our acquaintance.

It was astonishing to see how quickly and well the Thrush adjusted itself to novel conditions. By the twenty-ninth of June, that is, after three days of confinement, the bird was not only on the best of terms with me, but we had learned to communicate. I found that a very gentle kissing sound, made with the lips, at once attracted its attention, causing it to ruffle its feathers, as young birds do on the approach of the old ones, and giving rise to an expectant attitude generally. Having secured its attention, I had then only to open the cage door, when the bird would come out, hop into my lap, and open wide its mouth. In a few days more, the Thrush had learned my step and my whistle. Its recognition of these sounds was voiced in a succession of chirps, which, usually, had an imperative tone, or a coaxing one, and indicated an empty stomach. If my absence had been rather long and the bird's meal unduly delayed, its piping voice took on a mandatory key which bordered on imprecation. When well fed and comfortably at rest on its perch, the little fellow had a habit of trilling softly, as if talking to itself. This trill had a remarkable property of ventriloquism that led me, at first, to ascribe the notes to a bird out of doors; but I soon learned their author and came to take pleasure in their assurance of genuine contentment.

When captured, my Thrush was unable to feed itself, so I had to make my bungling fingers do the work of a mother-bird's dexterous bill. Knowing that it would be a good deal of a task to furnish, altogether, food of the same nature as that provided by the parent birds, I made the experiment of substituting, to some extent, for grubs, earthworms, and insects, raw beef cut into bits about one centimeter long by half a centimeter wide. Before inserting the pieces of meat between the young bird's gaping mandibles, I dipped them in water by way of lubrication, in order that they, readily, might slip down the bird's throat. This was the more necessary because the bird, often, would refuse to swallow unless the food had been placed far back in the mouth, at the very entrance to the gullet. Moreover, it seemed well to supply

water, in some way, to the digestive tract of the Thrush, which for many days refused to drink. Although the bird bathed almost daily, and once, at least, bathed twice in one day, up to July 31, when observation was discontinued, it drank in my presence but three times. These exceptions to its rule of abstinence occurred during some hot weather toward the end of its confinement.

The young Thrush took kindly to its diet of meat. June 28, between 8 A. M. and 7 P. M., it was fed eight times and swallowed 27 bits of meat. June 29, between 8 A. M. and 8 P. M., it was fed ten times and ate 25 pieces of meat. In order to get a more definite idea of the appetite that demanded this amount of solid nourishment, I began, July 4, to weigh the bird's food, as well as the bird itself. As this little investigation proceeded, it became apparent that the bird's weight fluctuated greatly within a space of twenty-four hours. Thus July 4, at night, the Thrush weighed 30 grammes, while in the morning of July 5 it weighed but 25.5 grammes, a loss during the night of 4.5 grammes. To appreciate the significance of this variation, let it be noted that the loss in a single night was 15 per cent of the total weight, so that if a 150 pound man were to suffer the same diminution in avoirdupois, between going to bed and rising, he would lose no less than 22.5 pounds.

In order to get comparable figures, I made it a practice, therefore, after July 5, to weigh the bird in the morning. For the five days, July 4 to July 8, inclusive, the bird's average weight was 27.7 grammes, and the average weight of meat eaten daily, 13.56 grammes. These figures do not convey a strictly accurate idea of the bird's appetite, because I was absent from my study several hours daily, and the Thrush, undoubtedly, would have eaten more if assiduously tended. For example, July 7, between the hours of 11.30 A. M. and 8.45 P. M., being constantly looked after, the bird ate 12 grammes of meat, nearly as much as its average for a whole day; and although my record indicates that it ate about 50 per cent of its weight in meat, yet I feel certain that under the most favorable conditions it would have made way with at least its own weight of raw beef, daily.

While meat formed the staple diet of my Thrush, during the first weeks of its confinement, and was used, more or less, throughout,

I began, early, to experiment with such food as I thought likely would have fallen to the lot of the Thrush had it been left to the care of its parents. Thus, July 1, I fed to the bird a number of earthworms. For convenience' sake, I cut a few of the biggest worms into two or three pieces, each of which was as large as an ordinary worm. Counting these pieces as whole worms, and this is legitimate, considering their size, the Thrush ate 19 worms between the hours of 8.30 A. M. and 1 P. M., four hours and a half. This is at the rate of 4 worms per hour, or one worm every fifteen minutes. These figures, again, do not represent the capacity of the bird truthfully because I had not become expert in feeding, and after I had made several unsuccessful efforts to thrust the wriggling object in my fingers down the bird's throat, it often would shut its mouth in disgust and refuse the worm.

July 3 came the discovery that the Hermit Thrush is fastidious in its diet. At 1.45 on that day, the bird weighed 25.2 grammes. At the same hour, I weighed out 7.5 grammes of worms taken from a manure heap. In 30 minutes, the bird had eaten four grammes of the worms. If it had continued at the same rate, it would have eaten its own weight in worms in 3.15 hours; but it soon appeared that the bird did not relish the flavor of these dunghill delicacies. It made a great splutter in eating the worms and frequently rejected them with every symptom of nausea and abhorrence, wiping its bill on the nearest object, which was, generally, my hand. So I threw away the remainder of this lot of worms and renewed the experiment with five grammes of worms taken from cool, black, garden mould. These the bird dispatched, with evident relish, in just 30 minutes more. At this rate, it would have eaten its own weight of acceptable worms in about two hours and a half! My record of later experiments, however, indicates that the Thrush would not prove quite so voracious a songster. Just how long it would take the young bird to eat its own weight in worms, I never accurately ascertained. To know this would, indeed, be interesting, but it would be of small scientific value since the conditions of captivity differ widely from those surrounding a bird in the wild state.

The results of the raw meat and the worm experiments caused me to infer a rapid digestion on the part of the young Thrush. It

was not long before I had an opportunity of verifying this presumption. July 11, I was shown, in a blueberry patch, a nest which I took to be that of a Hermit Thrush. Judging that the location of this nest might imply a fondness for blueberries on the part of the Thrush, I introduced a few berries, July 13, into my bird's cage. The avidity with which they were seized and swallowed showed that my conjecture had been well founded. The coloring matter of the berries dyed the bird's excretions, and it occurred to me that this fact furnished a ready method of finding the length of time required by the Thrush to digest blueberries. The test was made July 25. At 12.56 P. M. of that day, the bird voided white excrement and was fed, at once, with blueberries. At 2.28 P. M., one hour and thirty-two minutes later, it dropped blue excrement mingled with berry seeds. If this experiment is trustworthy, and I see no reason to doubt the accuracy of its method, the time required for a blueberry to traverse the digestive tract was, practically, one hour and a half.

I have said that, at first, my little captive was unable to feed itself. Generally speaking, this is true; but the bird soon acquired a habit of picking up occasional morsels and at the time of its release, July 31, it could get along very well without assistance, although, even then, it preferred to be fed.

The bird began to peck at imaginary objects, in a desultory way, June 29. In the morning of July 1, while the Thrush was on a window sill, a favorite perch when liberty had been granted it, I put beside it a piece of earth-worm. It eyed the worm for a moment and then attacked it in dead earnest. In its enthusiasm, the bird lost its balance and fell off the sill; but later, when it had regained its equilibrium, mental and physical, it managed to get away with several worms unassisted. July 3, the Thrush spent some time on the floor of my study, running about, sometimes making short flights, and displaying, withal, a great deal of curiosity. My shoes, particularly the lace fastenings, the carpet tacks, and a pair of ring staples on a box, were all critically examined and pecked at; but the favorite subject of investigation was a small piece of waste paper that lay on the floor. The paper was red on one side and white on the other and was picked up and tossed about very frequently. July 8, the bird discovered a fondness for

house flies, to which, when placed in its cage, dead or disabled, it helped itself. Later it developed considerable skill as a flycatcher and no insect was safe within the wires of its cage. The bird's predilection for pulling over paper grew on it. It was very amusing to see it alight on my study table and essay, forthwith, to look beneath each separate sheet of paper lying thereon. This habit I took to be a display of instinct, which, exercised in the woods, would lead the bird to overhaul leaves and other similar rubbish in search of food.

The behavior of the Thrush at various times gave me several hints as to the habits of its species in the wild state. For example, it ate most greedily in the morning and at night, thus corroborating the general testimony of observers that birds take a rest in the middle of the day. Again, as dusk came on, the bird became restless and fluttered about its cage so recklessly that, at times, I was obliged to cover the cage with a cloth and set it in a dark corner. After some study of the bird's movements, I was led to attribute its unrest at evening to a desire for a high perch. To test my inference, I one evening liberated the bird. It flew about the study, close to the ceiling, and, finally, went to roost on a high picture. This proved that I had, in fact, in these nightly flutterings, an evidence of the instinct that leads birds to seek high perching places, at night, as a safeguard against many dangers. It struck me as especially interesting in the case of the Hermit Thrush which builds its nest on the ground.

My captive Thrush slept with its head under its wing, in the orthodox fashion, and took occasional naps during the day. It proved a meditative bird and would sit for half an hour at a time with an air of deep abstraction. As it dozed on my study table, June 30, I counted its respirations and found them to be from 80 to 85 per minute. When it is reflected that the rate of human respiration ranges from about 44 at birth to 15 at maturity, the fact that the bird is a high pressure organism may be appreciated.

My Hermit Thrush belied its name by being very fond of society. Occasionally, I allowed the bird the freedom of my study. At such times it preferred to keep near my chair, often alighting on my head, or on the table upon which I was writing. It would allow itself to be held in the hand, but was rather ill at

ease, and pruned itself carefully on being released. It bathed regularly, and though it kept its cage in a litter, was scrupulous about its plumage. When taken, its tail feathers had just started. They grew rapidly, and by July 31 had attained their full length. As soon as the appendage had gained sufficient length to be used in gesticulation, the bird accompanied its 'peeping' cry with flicks of the tail, after the manner of a Robin. Some of its attitudes, as it stood with uplifted tail, were very like those of the Catbird.

In concluding this record it remains to speak of the bird's method of eating earthworms, for it was method, indeed. The bird began by worrying the worm, much as a cat does a mouse, nipping, pecking, and slatting its victim violently. The attack seemed to be directed, mainly, at the extremities of the worm. Thus, in one case, the head of the worm was pecked ten times, the tail seventeen times, and the middle twice. The worm, of course, squirmed and wriggled vigorously, at first; but, after a time, lost, in a measure, the power of motion. Now and then, the bird's beak would miss the worm, or would slip off. At such times the mandibles came together with an audible snap, conveying a suggestion of the torturing pinches to which the unfortunate worm was being subjected. The pummeling and nipping having gone on for from one and a half to three and a half minutes, the Thrush would next essay to swallow the worm, beginning, almost invariably, at the tail. This mode of attack may have been prompted by a chivalrous desire to give the poor worm as much of a chance as possible. If so, its object was, in a measure, gained, for, in the case of a big worm, the process of swallowing was distressingly prolonged by the efforts of the worm to escape, in which it often succeeded so far as to crawl out of the bird's mouth almost as fast as it was drawn in. The outcome of the struggle was always in the bird's favor, although in one instance, that I timed, the head of the worm visibly protruded from the bird's throat for seven minutes and a half after swallowing began.

The fact that the Thrush swallowed its worms tail first gains something in interest when the structure of the earthworm is taken into account. As is well-known, the earthworm's body consists of from 100 to 200 rings, or segments. Every segment, except the

anterior two or three and the last, affords insertion to four groups of short bristles, to which muscles are attached, and by means of which the worm progresses. The bristles may be made to point in either direction, according as the worm wishes to advance or retreat. When pointed toward the tail, they hold the worm as it crawls ahead; when directed ahead, they give foothold for retrograde movement.

Now a person would suppose that the presence of several hundred little bristles, all pointing the 'wrong way,' would interfere with easy and pleasurable deglutition; and inasmuch as a worm, normally, crawls ahead, and not back, I expected to see my Thrush swallow worms head first, when, it is to be presumed, the bristles in question would not retard the process. As a matter of fact the contrary method, as noted above, was followed. Once in a while, a small worm was seized by the middle and doubled, or taken by the head; but careful observation, extending over several days, brought out so few instances of this kind that I am convinced it was a rule with the bird to swallow earthworms tail first. The fact that the worm often made some progress in its attempt to escape from the bird's mouth would indicate that the bristles were in working order, despite rough treatment, and that they were pointed back, toward the tail of the worm. From this we must infer, either that the bird was indifferent to the rasping of the bristles on the walls of its throat, or that the sharp resistance they exhibited added spice and flavor to the writhing morsel. But, for all that, any explanation is merely conjecture, and why the Hermit Thrush should choose to begin its meal with the tail of its victim remains a curious, though not a profound, subject for speculation.

RECENT INVESTIGATIONS OF THE FOOD OF EUROPEAN BIRDS.

BY F. E. L. BEAL.

A PAPER upon the food of the Rook (*Corvus frugilegus*) by Dr. Hollrung, appears in the Seventh Annual Report of the Experi-

ment Station at Halle.¹ Another paper by Mr. John Gilmour² of Fifeshire, Scotland, treats of the food of the Rook, the Wood Pigeon (*Columba palumbus*) and the Starling (*Sturnus vulgaris*). These two papers are interesting contributions to the literature concerning the food of three rather important birds, but they can only be considered as giving glimpses of a field in which much remains to be done.

Dr. Hollrung gives the following statement of the food found in 131 stomachs of Rooks killed in April, May and June, within a narrow limit of territory: Larvae of *Zabrus gibbus*, 48; wire worms (Elaterid larvæ), 20; grub worms, 253; May beetles, 160; weevils (*Otiorynchus*), 1688; weevils (*Tanymecus*), 22; snails; mice, 17; grains of wheat, 420; grains of barley, 471; grains of oats, 190; cherries, 22.

From these examinations Dr. Hollrung has arrived at the following general conclusions:

"1. The Rooks examined have proved on the whole neither exclusively useful nor exclusively injurious. While 25 per cent of the Rooks' stomachs contained no vegetable matter, there were only two cases in 131 where no animal matter was found.

"2. Their food consisted for the most part (about 66 per cent) of animal matter, such as mice, larvæ of the grain-eating Carabid (*Zabrus gibbus*), grub worms (*Melolontha vulgaris*), dung beetles (*Aphodius spec.*), and clover weevils (*Otiorynchus ligustici*). The vegetable food was made up of wheat, oats, and barley, and cherries.

"3. The harm done by the Rooks on the one hand was perfectly balanced, and even considerably outweighed on the other hand by the useful services rendered.

"4. The Rooks feed principally on slowly moving insects."

In the investigations made by Mr. Gilmour the stomachs of 336 birds were examined, not counting 19 that were empty. They

¹ Untersuchungen über den Mageninhalt der Saatkrähe (*Corvus frugilegus* L.) Dr. M. Hollrung. 7ter Jahresbericht Versuchs-station f. Pflanzenschutz zu Halle a. S. 1895, pp. 5-26.

² An inquiry Concerning the Relations of Certain Birds to the Agricultural Interest, as shown by their Diet. John Gilmour. Trans. Highland and Agri. Soc. Scotland, 1895. Fifth Series, Vol. VIII, pp. 21-113.

were evenly distributed through the twelve months of the year, but were all killed in a restricted area. Mr. Gilmour thinks, however, that the results obtained would not differ greatly if they had been collected over a larger district, as the one in question may be considered as fairly typical of southern Scotland.

The food found in the 336 stomachs was classified under four heads, viz: (1) insects and grubs, (2) roots, (3) cereal grains and husks, (4) miscellaneous. Of these the third is of the greatest importance, both from its economic interest and from the fact that it is the food most often taken. Mr. Gilmour reckons his percentages from the number of times that the bird has taken the food, and from this concludes that grain and husks constitute 58 per cent of the Rook's food. Insects and grubs, reckoned in the same way, amount to 23 per cent. It can hardly be claimed that this is the most accurate method of calculating the relative amounts of food found in a bird's stomach. Birds are fond of eating a great many different things, the aggregate quantity of which may be small, just as human beings eat a little butter and sugar at nearly every meal, but never make a whole dinner of either. To illustrate, in an examination of 2258 stomachs of the Crow Blackbird corn amounted to 35 per cent of the food by bulk, but when reckoned by the number of times taken it aggregated 52 per cent.

Insects and grubs are mostly eaten by the Rook from May to August inclusive, but only in June and July do they amount to more than any other item. As most of the insects are said to be useful species, Mr. Gilmour is of the opinion that the harm done by their destruction "can scarcely be considered as counterbalanced by the grub consumpt." On the whole, his verdict is against the Rook, for he says: "Taken altogether, the Rook has almost no claim to agricultural regard. . . . Is not the broad fact clear that grain is the staple of staple foods for Rooks? Lusting for it as these birds do, we may rest assured that the Rook will attack and prey freely upon the farmer's grain whenever and wherever favourable opportunity is presented; whether soft or hard, whether sprouted or unsprouted, whether ripe or unripe, whether in dung or on stubble-field, is of little moment to the Rook." While he acknowledges that much of this grain was taken

from dung, or consisted of scattered kernels picked up in stubble-fields, he still considers that it must all be counted against the birds, as it shows their taste for grain. This is not fair. Grain so obtained has no value to the farmer and should not be reckoned as a loss. As a matter of fact, Mr. Gilmour's own tables show that the Rooks *do not* "attack and prey freely upon the farmer's grain whenever and wherever favourable opportunity is presented." Many stomachs taken in harvest time show no grain, and a large proportion of them contained some insects. It cannot be claimed that any of them lacked opportunity to eat grain, for all were collected practically from the same locality.

In comparing the results obtained by these investigators some important differences are noted, and it is seen that the two have drawn almost diametrically opposite conclusions. The Rooks examined by Dr. Hollrung contained 17 mice, an article of food which Mr. Gilmour does not seem to have found in his. The insects, unlike those eaten by the Scottish Rooks, were mostly noxious species whose destruction was a decided benefit to the farmer. While grain was eaten to some extent by Dr. Hollrung's Rooks, it does not appear to constitute an important article of their diet economically considered.

Mr. Gilmour assumes that the Rooks taken in Fifeshire fairly represent those of the whole of the Lowlands of Scotland in their food habits, an assumption that may possibly be true, but Dr. Hollrung's investigation shows that no such supposition will hold for extensive areas of country. Stomach examination as well as field observation shows more and more that the kind of food taken by birds is determined by availability as well as taste; consequently the food of any particular species will vary to a certain extent in different localities.

The Common Crow (*Corvus americanus*) represents in this country, as nearly as may be, the economic position occupied by the Rook in Europe, and a few points of comparison in their food may not be without interest. The food of the Crow consists of about the same proportion of animal and vegetable matter as that of the Rook.

In the first four items of Dr. Hollrung's list the Crow and the Rook present a great similarity of taste, the *Lachnosterna* of this

country replacing the *Melolontha* of Europe. It is in the next two items, the weevils, that the Rook shines resplendent. An average of over thirteen specimens of those small but very harmful beetles in each of the 131 stomachs is certainly a splendid showing. It is singular that none of these insects were eaten by the Rooks taken in Scotland. While many of these beetles were eaten by the Crow, they do not constitute so constant and important an item as in the case of the Rook. The Crow eats a considerable number of Carabid beetles, most of which are of the more predaceous species, while those eaten by the Rook are, for the chief part, the larvæ of *Zabrus gibbus*, a very destructive grain-eating species. Grasshoppers, which are extensively taken by the Crow, are conspicuously absent from the food of the Rook.

In the varieties of vertebrates eaten, the Rook is far behind the Crow. Only seventeen mice were found in the 131 stomachs taken in Germany, and none in those collected in Scotland. In no case did any stomach contain the remains of more than one. The Crow, on the other hand, not only preys upon mice and other small mammals but even captures young rabbits, and eats many snakes, young turtles, salamanders, frogs, toads and fish. The Crow also eats many crayfish and other smaller crustaceans which do not appear in the Rook's bill of fare.

In the matter of vegetable food the Rook does not seem to indulge in any great variety. It does, however, eat some potatoes, which the Crow rarely touches. The Crow eats about every kind of grain that the country produces, besides fruit and acorns or other mast. It appears to be far more omnivorous than the Rook; in fact, it seems doubtful if there is anything eatable which a Crow will not eat, while, so far as shown, the Rook is quite exclusive.

In Mr. Gilmour's investigation of the food of the Wood Pigeon 245 stomachs were examined. They were quite evenly distributed through the year, but, like the Rooks, were all taken within a limited area. The contents of these stomachs are arranged in five groups, which, taken in the order of frequency, are as follows: (1) Cereal grains; (2) leaves; (3) other fruits and seeds; (4) roots; (5) flowers. Cereal grains were taken to the extent of 33 per cent of the year's food, by Mr. Gilmour's method of calcula-

tion, but as a great part of this was eaten in the months after August it would seem to an American farmer that it must be mostly waste grain picked up in the stubble fields. Leaves were eaten to the extent of $27\frac{1}{2}$ per cent and a large amount of these were leaves of clover. While a bird that eats clover leaves may be potentially harmful, it is evident that the birds must be wonderfully abundant in order to do the clover much damage by simply eating the leaves. A great number might possibly hurt the forage by breaking it down and sitting upon it. Besides clover leaves, the Pigeon also eats the leaves of turnip and several weeds, as well as the seeds of beans, peas, clover, turnips, weeds and some trees. Roots and underground stems (mostly potatoes) are eaten to the extent of $8\frac{1}{2}$ per cent. Mr. Gilmour's conclusions are entirely against the Pigeon. He says: "Though grain be left entirely out of court, the Pigeon stands utterly condemned by the heavy black score still standing against him for root-crop and clover-leaf destruction." While we know nothing about this bird practically, we are inclined to think that further observation and thought will serve to render the score several shades lighter.

Of the Starling, 175 stomachs were examined, collected in every month, though but few were taken in July, August, October and December. Like the Rooks and Wood Pigeons, the Starlings were all taken within a small area of country. With regard to the food in these stomachs, Mr. Gilmour says. "... Starlings are most monotonous in regard to diet. All the food-stuffs found in the crops and gizzards examined are conveniently grouped thus: (1) grubs; (2) insects, etc.; (3) cereal grains; (4) miscellaneous."

Of these the first two amount to 70 per cent of the whole food, and the third to 22 per cent. This grain is very properly not reckoned as being very valuable, as the tables show that most of it was taken after harvest time, so that the comparative usefulness of the bird is made to depend upon the character of the insect food. Mr. Gilmour does not seem to have any very definite method of determining comparative quantities of food, for he says: "The *how much* of each kind cannot, of course, be stated; but the impression which one gets from careful and close examination of the contents of any large batch of Starlings is that the

injurious species are more frequent in the birds than the useful kinds." It is gratifying to learn this, as the Starling has been introduced into America, and in time may possibly become numerous enough to be of economic importance.

Mr. Gilmour makes the following happy summation of the status of the three birds whose food habits he has investigated. "Of the Pigeon it may be said that he is an unmitigated scoundrel; of the Rook that he is a cunning rogue; but of the Starling we can say with truth that he is our natural friend, by habit and by instinct."

SOME NOTES ON THE NESTING HABITS OF THE WHITE-TAILED KITE.

BY CHESTER BARLOW.

THE White-tailed Kite (*Elanus leucurus*) is perhaps as common in certain portions of California as anywhere throughout its breeding range, and it is resident in Santa Clara County, where the genial climate and almost perennial sunshine are conducive to an abundant food supply. Santa Clara County lies south of the San Francisco Bay region, and its northern boundary is the lower shore of San Francisco Bay. The northern portion of the county consists of the 'lowlands,' which support, in many places, a luxuriant growth of willow. Toward the ranges which surround the valley there are magnificent fields of live oaks and white oaks, which have attained in many places a grand perfection. Considerable of this country is given to farming, and here the trees have been spared. Approaching the foot-hills, and all through the valley from San Jose southward, especially along the water courses, the sycamore and white oak are most commonly met with, and afford the *Buteo* tribe many available and secure nesting sites. Thus it will be seen that certain portions of Santa Clara County are peculiarly attractive to raptorial birds as breed-

ing grounds, and the White-tailed Kite is found scattered in pairs at suitable locations throughout the county.

It has been my pleasure to spend considerable time during the past few years in observing the nesting habits of several pairs of Kites, distributed at various points throughout the county, and the results tend to show considerable individuality in the respective pairs of birds. The White-tailed Kite being of unquestionable benefit, is deserving of the fullest protection, and in one locality at least I know that its usefulness is appreciated by the farmers. Its principal food in this section consists of small rodents, such as gophers, field mice and wood rats, lizards and probably in season a few grasshoppers. Mr. Henry W. Carriger, of Sonoma, Gal., who has had considerable experience with this bird, writes me of finding a freshly-killed ground squirrel lodged in a tree beneath a nest, and which had undoubtedly been captured by one of the Kites. This is probably larger game than they attack as a rule.

With the gradual settling up of the country there is no doubt but that this bird is becoming rarer each year. They are essentially birds of the valley and are rarely seen in the foothills and mountains. One pair which I have known for years and which had never failed to nest in a particular growth of live oaks each year, was missed from its accustomed haunts the past spring and could not be located anywhere in the vicinity. A wood choppers' camp had been erected in the grove and the Kites, in their gentle and unsuspecting nature, had probably fallen prey to the gun of some misguided wood chopper.

Their flight is even and graceful, often quite rapid but lacking the dash of the true Falcons. In hunting in the early morning hours both birds often go together, and they may frequently be seen hovering motionless in air, much after the manner of the Sparrow Hawk. The principal note consists of a low, plaintive, musical whistle, quite pleasing to the ear, and which is uttered both when the bird is at rest on some tree top and occasionally while it is on the wing in the vicinity of its nest.

With few exceptions I have found this Kite nesting in level or slightly rolling country where the live oak is abundant. A pair of these birds will take up their abode in a favored location

where they will remain for years, zealously guarding their domain against intruders, and nesting from year to year within a small radius, sometimes in the same tree. If their first laying of eggs be taken they will, as a rule, construct a new nest and lay a second time, and only in one instance did I find the same nest used twice in the same season.

My experience with the White-tailed Kite dates back to 1887, when a pair of birds were found in a secluded live oak pasture. They were commonly known as 'White Hawks' and it was not until several years later that I succeeded in finding my first nest. These birds frequented the same locality each year until the past season when they had disappeared, having probably been shot as mentioned. Having found several of their old nests at different times I visited the locality on April 19, 1894, having previously seen the birds among the trees. Most of the oaks averaged twenty-five to thirty feet in height and were easily accessible. After a short search a nest was discovered in the extreme top-most branch of a live oak, twenty-five feet from the ground. The nest was composed of small oak sticks and was lined with dry stubble and a little Spanish moss, and measured about one foot across. It contained three eggs, which were fresh and had evidently been deserted, as a cobweb had formed over a portion of the nest. The eggs were slightly faded from exposure to the sun, and the birds did not put in an appearance. I did not again visit the locality during the season of 1894.

Early in the season of 1895, when budding trees and bright foliage heralded an early spring, my thoughts went back to the Kites of the previous year, and though March had ushered in a cold, rainy spell, on the 17th I visited the country to ascertain if the Kites had returned to their former haunts. The day was a dark one, threatening rain, and a strange quiet pervaded the grove, in contrast to the usual varied chorus of small birds. Neither of the Kites could be seen, so I searched for the tree in which they had built the previous year, and from which I had removed the nest. My surprise was complete when a new nest was discovered built on the exact site of the former one, in the highest available crotch of the tree. From the nest one could see in all directions over the fields, and still the nest itself was securely

hidden in the leafy top of the oak, and only to be seen on close inspection from the ground beneath. At this date, March 17, the nest contained four eggs, which were warm and very slightly incubated. The parent bird was not seen until I had left the tree, and had doubtless been enjoying her morning exercise. The nest, which is a typical one, measured twelve inches across, with a depression in the center of perhaps three inches, and was composed of small dead twigs from the live oak, and lined with fine straw stubble, from the field near by. The four eggs constituting this set are of an unusual type, three of them being marked chiefly about the ends, while the fourth is streaked lengthwise more heavily than the average egg.

I did not visit the locality again until April 5, when both birds were observed sitting quietly in the top of one of the tallest trees, this time some distance from their former nest. I, however, repaired to the nest and found it to contain three eggs, it being evident that the set was not complete. On the 9th five eggs had been laid and the female quietly left the nest when I was half-way up the tree. The same nest had been used in which the first set had been laid, and the birds had added no new lining. The parent birds showed little concern, remaining quietly at a distance and giving expression to an occasional 'whistle'. The time which had elapsed between the taking of the first set of four eggs and the completion of the second set of five was twenty-three days. It seems unusual that the second laying should have consisted of five eggs, and the set itself exhibits extreme variation in coloration, the specimen with the buff ground color and dark markings being perhaps the oddest of all. The white egg and the bright reddish specimen were laid last. The eggs of this set average somewhat larger than the first laying of four eggs. The three sets of eggs to which we have thus far referred are the production of one pair of birds during the seasons of 1894 and 1895, and will, I think, if the normal types from each set be compared, show a similarity, in that the markings tend toward the ends of the eggs as a rule. Before disposing of this pair of Kites I will say that I did not visit them again during 1895, but early this year while looking over the ground I discovered another nest in a small oak, which had been used, and which leads me to believe that the birds laid a

third time and successfully reared their brood. This year the birds had disappeared, and were not located in the surrounding country, so it is evident that they had been shot after inhabiting the locality for at least ten years.

On March 24, 1895, I met my second pair of birds in a region similar to the last and where I had somewhat expected a pair might be nesting. When incubation has well begun the female is difficult to flush, and the male seems to make himself as inconspicuous as possible, so one might at times pass through a locality inhabited by the Kites and not suspect their presence. On the day in question, while walking among the trees I chanced to see a Kite flying toward a cloister of oaks half a mile distant and followed it. The bird, presumably the male, was perched on a lofty white oak, the highest in the field, where he sat quietly. Suspecting the female had a nest near by I began a careful search of the neighboring oaks and after twenty minutes' work located the nest twenty feet up in a small live oak tree. The female did not leave the nest until I had almost reached it, when she flew to a near-by tree and was joined by the male. The male began a gallant attack in defense of the nest, swooping down on me at intervals in a furious manner, being occasionally reinforced by the female, while both snapped their beaks, much after the manner of young Owls. The nest was unusually large, having evidently been used more than once. It was lined with long dry grass, and similar in other respects to the average nest. It contained five heavily-marked eggs of the usual dark type, in which incubation was far advanced, three of the eggs being slightly pipped. From the stage of incubation it is likely that the nest was constructed late in February and the eggs laid soon after. The eggs of this set average 1.80×1.31 . The clutch is now in the collection of Mr. John W. Mailliard.

This pair of birds after being robbed removed to a locality half a mile away, where they soon began to construct a new nest in a small oak, twenty feet from the ground. One of the birds was observed to alight in the top of a tree, where it broke off a twig from among some dead limbs, when it flew back to the newly begun nest and deposited it. Finally the nest was completed and four eggs were laid. These I collected on April 15, the female leaving

the nest on my approach. The eggs of this set average smaller than those of the first laying of the same birds, and one specimen is particularly bright in coloration. The parent bird attacked me as in the first instance, but soon gave up the battle and alighted near by. This set is now in the collection of Mr. C. W. Crandall.

This spring I was interested to see if these birds would prove as early breeders as in 1895, so on March 10, 1896, I visited their domain and found that the last year's nest had been added to and freshly lined, and four eggs deposited. The nest was twenty feet from the ground. Incubation was fully one-third advanced, which corresponded approximately as to date with the laying of the former season. The birds showed the same aggressive spirit, which in itself seems a trait amply sufficient to distinguish this particular pair. This set of eggs is also in Mr. Crandall's collection.

The Kites now repaired to their location of the previous year, where they built a new nest in a scraggly live oak twenty-five feet from the ground, and which contained four eggs on March 29. The set was not collected. Nineteen days had been required to build a new nest and deposit a set of four eggs, while in 1895 twenty-two days were occupied in performing the same duties. This pair of birds have never used a nest the second time during the same season. I fully expect to find them amid their familiar surroundings next spring, and judging from the occurrence of white eggs in their layings, I consider that they have occupied the present locality for many years.

On April 13, 1895, a third pair of Kites were found occupying a grove of trees in a grainfield, where there was a plentiful food supply. Their uneasy actions indicated a nest in the vicinity, and careful search revealed an old one in the top of a tall oak. It contained numerous dried-up pellets, which are found in nests in which a brood has been reared, and which are no doubt ejected by the young after being fed. The new nest was found a short distance away, thirty-five feet up in a live oak, and smaller than the average in size. It was lined with dry stubble, a small quantity of Spanish moss and a few feathers from the parent bird. Four eggs constituted the set, three being one-half advanced in incubation while the fourth was infertile. The eggs were quite

round in shape. Both birds remained perched on a white oak a short distance away, and showed little concern.

This year I did not visit these birds until March 29, when a short search brought one and then both birds to view. They flew about uneasily, uttering their plaintive whistle, while I looked for the nest. Presently it was found in the extreme top of a slender oak, thirty-five feet from the ground, and contained four eggs which were fresh. The nest was 18 inches in diameter and lined with long, dry grass. Two of the eggs of this set are of the bright coloration. The eggs of this pair of Kites are considerably rounder than any others I have taken. The set is now in the collection of the U. S. National Museum.

During the early spring of the present year my collecting trips took me through the hills to a great degree and here I found a pair of Kites located in a most picturesque spot. On February 23, the birds were observed in a cañon, giving chase to a Western Red-tailed Hawk, which had evidently trespassed upon their territory, after which they slowly flew back and perched on a fence on the hillside. On March 8, the nest was found containing two eggs. Both birds were near but showed little anxiety when I climbed to the nest. On March 14, I again visited the nest, this time during a shower, and both birds were very quiet. The male was doing look-out duty on a favorite post of a fence bordering the cañon, while the female was on the nest. She left when I began to climb the tree and joined her mate. The nest held four eggs, which are quite round in shape, and two of them are of the handsome reddish coloration. The nest was fifteen inches across and six inches thick, with quite a depression in the center, as was necessary, for the nest was 50 feet from the ground in the topmost branch and subject to high winds which swept up the cañon. The birds flew high overhead, uttering their plaintive whistle but making no attack. The nest was beautifully situated, being in the top of a high oak which was covered with streamers of Spanish moss, and the view down the cañon was unusually picturesque.

The birds were observed at different points for three weeks when they finally began a new nest in a small scraggly oak near the head of the cañon. When not at work on the nest both birds would sit for long intervals on a dead tree near by, without mak-

ing a sound. On April 12, the nest held its first egg, and both birds were near by. A week later when I visited the cañon, neither of the Kites could be found, and the nest contained naught but a few fragments of shell. The destruction of the eggs was probably accomplished by a ground squirrel, after which the birds deserted the locality.

REPORT OF THE A. O. U. COMMITTEE ON PROTECTION OF NORTH AMERICAN BIRDS.

YOUR Committee feel that the work done for the protection of birds during the year 1896 has been amply rewarded, and that the results obtained in the various channels of labor have been commensurate with the efforts made. The brief outline of results given below will, we think, be of interest to the members of the Union, and will also be an incentive to an increased activity on the part of the various bodies and individuals who are interested in this most important and necessary work.

MASSACHUSETTS.

Mr. Geo. H. Mackay, of the Committee, reports as follows:

"I have to report for the district coming under my jurisdiction that there is substantial evidence to prove that the enforcement of all protective laws has been a good and wise investment. Two visits to Muskeget Island during the summer gave evidence of the beneficial results of protection, for it is doubtful if in the history of the Massachusetts Terns they have ever been so abundant as during 1896. They have enjoyed a season of unmolested quiet; no eggs have been taken, and only eight birds were shot. The results to be appreciated should be seen. I regret to be compelled to add that the unsettled conditions between the town of Nantucket and the owners of Muskeget, referred to in 1895, still exist, making the work of protection a peculiarly difficult one. The majority of the Selectmen of the town do not oppose

the protection of the Terns. The work in its detail takes both time and effort, and I am convinced that a relaxation of vigilance would be to the decided disadvantage of the birds. The United States Government during the past summer has erected a Life Saving Station on Muskeget Island, the crew employed being on duty except during the months of June and July, when the captain remains there alone. As these two months are the breeding season of the Terns which annually return there, I hope, in the future, to be able to arrange with the Selectmen of Nantucket or the Captain of the Station, or both, to continue the protection of the colony.

"In June I visited Penikese Island, Mass., and made an examination of the large colony of Wilson's and Roseate Terns domiciled there, estimated to number some six or seven thousand birds. They have been subjected to numerous hardships, having been annually robbed of their eggs up to the 10th of June, after which date they were left more or less undisturbed. This colony of Terns appeals to the best efforts of all who are interested in preserving bird life, especially residents of Massachusetts. I have reason to believe that before the commencement of the next breeding season the owners of the island may be induced to co-operate with others in extending to these Terns the fullest protection, and it is desirable that those interested in such a result will use their influence in bringing about such an end.

"Early in the present year I appeared several times before the Fish and Game Committee at the State House in Boston, urging a new law which I had assisted in formulating, advocating a closer season for some of our Game Birds, and also for the protection of some of our Hawks and Owls. Had any legislation been obtained I believe the statute advocated would have been recommended by the Committee. It is very probable that I may again offer the same bill during the coming season."

GREAT GULL ISLAND, N. Y.

Protection was given the colony of Terns on Great Gull Island, N. Y., during the past season by Capt. Henry P. Field, the State Game Protector, whose salary was paid by the Linnæan Society, the American Society for the Prevention of Cruelty to Animals,

and the West Side Natural History Society, all of New York City. Capt. Field reported that the Terns arrived at the island May 11, about four days earlier than usual, that there were large numbers of them, and that it was pretty generally known by the public that they were protected.

This island, being the property of the General Government, and Capt. Field having full charge of it, as well as being the State Game Protector, his authority is recognized and respected.

At the close of the season Capt. Field reported that the Terns left the island September 27,—one day earlier than in 1895. A great many were hatched during the past season, as the colony was not disturbed at all. It is a hard matter to estimate their numbers, but they are very plentiful. I should think that there were about 7000 pairs in the colony.

That the colony has grown very largely is evidenced from the fact that an overflow colony of some hundreds of birds has established itself on the north end of an adjacent island (Gardiners Island). The keeper of Montauk Point Light informs me that the Terns were more numerous about the point during the past summer than for many years. It is proposed by your Committee to continue the protection of this colony until, if possible, the south side of Long Island is again populated with these beautiful birds, as it was before they were practically exterminated in 1886 by the demands of fashion.

NEW JERSEY.

Mr. Stone, of the Committee, reports of the New Jersey coast:

"I have visited, or have reliable reports from, various points from Point Pleasant to Cape May. I have no record whatever of any *Sterna antillarum*. *S. hirundo* continues in about the same numbers as for several years past. There were about ten pairs breeding between Atlantic City and Brigantine, all back on the salt marshes, and they are reported more plentiful near Avalon. *Larus atricilla* I found breeding on the marshes northwest of Brigantine beach, the colony including about 40 pairs.

"Another colony is reported from near Sea Isle City. I am sorry to state that fishermen were systematically robbing the nests at Brigantine; the colony, however, is out of reach of the ordinary

summer visitors, as the water is so shallow that but few yachts ever go up so far. The Clapper Rails were very plentiful, and but little egging was done. Unfortunately, however, there were two very high tides in September which completely flooded the marshes and compelled the birds to swim, when they became easy marks for the pot hunters. It is estimated that 10,000 birds were killed in two days at Atlantic City alone. The market was glutted, and large numbers of the dead Rails went to waste. If a limit to the number shot by one man could be fixed by law it would have an excellent effect.

"The Pennsylvania Audubon Society has only just been organized, and is not yet in working order. Its plan of work will be much the same as the Massachusetts Society, after which it is modeled. Many of the most prominent citizens of Philadelphia have given it their support as honorary Vice-Presidents, and we hope to do some good work.

"During the year I have delivered a number of lectures in Philadelphia and vicinity before schools, societies, etc., on ornithology, and worked with good success to interest persons in the study and protection of birds; the former generally follows the latter, and I think the diffusion of ornithological information in this way a very important matter. Mrs. Olive Thorne Miller's course of lectures in the city last spring was productive of good results.

"Finally, I would report that the Delaware Valley Ornithological Club has a Committee on Protection of Birds, which is prepared to deal with any questions which may be brought to its notice."

ILLINOIS.

Mr. Ruthven Deane, of the Committee, reports as follows:

"In regard to the present use of birds for millinery purposes, I have made considerable investigation, having been introduced to a number of our largest and best-posted firms in that business. The result of my inquiries is that while feathers and plumes are extensively used in the trimming of hats, few, if any, native birds, aside from the Egret, are now used.

"The majority of the feathers are from pigeons and chickens, and are dyed. I cannot find, as reported by Miss Merriam, that any artificial heads and beaks are made of celluloid.

"The rage for the Egret plumes is greater than ever, and in the past sixty days the price has advanced over one hundred per cent. At present the fashion is principally to use the stub half of the plume, although the tips and finer ends are also used, but to a less extent, naturally being considerably higher in price.

"Our city taxidermists advise me that they have had little or no order work for millinery purposes in the past year, and such as they have had has not been for insectivorous birds, and that they do not employ boys to shoot specimens, as was once their custom.

"The proprietor of one of our large wholesale millinery stores informed me that a feather and plume dealer with whom he used to do business had ceased fitting out any further expeditions, he having lost heavily on former ventures.

"About the only heads of birds that have been in use in the past year have been those of some foreign Blackbirds and Sparrows, which have been principally imported from France. The quills of one or two species of Pheasants, probably from China, are also more or less in fashion. The birds are imported in the skins, so as to save the duty on manufactured goods, and the tail, composed of eighteen feathers, commands quite a large price.

"Really the only destruction that is now going on among our native birds is evidently among the Herons and Egrets, and, while this has been on the increase for the present fashion of this spring (1896), the general opinion is that it will die out, not to return to the extent that has heretofore prevailed.

"I have recently been using my influence upon a number of ignorant country boys, who have annually made a great depredation among the Herons in what is known as 'Crane Heaven,' on the Kankakee River, in Indiana, and, while my influence was only on a moral basis, several promised to desist from any wanton destruction this year. Two gunners would visit the heronry once or twice during the summer and slaughter from sixty to eighty Great Blue Herons in a day, leaving them where they fell on the ground.

"The Game Laws of Illinois last year were more carefully enforced than for many years, and a great many arrests were made among idle boys who were shooting small species, such as Robins, Woodpeckers, etc. I think the same watchfulness will be continued this year."

In a later communication Mr. Deane writes as follows :

"Fashion in feather ornamentation has not materially changed since I wrote you in detail in the spring. We occasionally see the heads or wings of some of our native species worn in their natural color, yet the tame Pigeon and Egret head the list in this section of the country.

"I wrote you before that I had endeavored to use influence in the protection of Herons in a certain 'Crane Heaven' on the Kankakee River in Indiana. During two trips in the past two weeks in that region I find, quite to my satisfaction, that no raids were made on the heronry last spring and summer, as had yearly been the custom of the native boys and, I am sorry to say, some so-called sportsmen. My appeal may have done some good, but the fact that a bad fire played havoc in the woods near the heronry, made the approach much more difficult. The location where the Night Herons bred, a long stretch of low 'pucker brush' bordering the marsh, was wiped out by fire, but the birds evidently found another favorable site, for they are much more abundant now than I have seen them in years.

"I have been living this summer at Highland Park, a small town twenty-five miles up the Lake shore. The authorities have taken strict action against the killing of insectivorous and song birds, and have posted that section of the law on the trees and public buildings of the town. The unusual abundance of many of the summer resident birds is no doubt the result of the enforcement of the law."

CALIFORNIA.

Mr. Leverett M. Loomis reports for California as follows : —

"Several days ago I sent you a 'separate,' giving some account of the havoc that is being made by the light keepers among the sea birds on South Farallon Island — the sale of eggs to collectors

threatening the extermination of the Petrels, and the market trade the extermination of the Murres and Gulls.

"I write now seeking the aid of the A. O. U. in putting an end to this nefarious traffic. Two steps are needful:

"1. A California law must be secured prohibiting the sale of wild birds' eggs. This will stop the shipping of eggs to the markets.

"2. An order must be obtained from the U. S. Lighthouse Board instructing the Farallon keepers to stop gathering eggs, and to keep off possible poachers that might want eggs for their own consumption.

"A committee from the California Academy of Sciences can attend to the California law. I shall present the matter in a lecture I am to deliver on the Farallons, October 19, before the Academy.

"It remains for the A. O. U. to secure the action of the Lighthouse Board.

"All this can be accomplished this fall, and another season the birds will be allowed to breed, and the rookeries will be preserved. Kindly send me copies of the New York and Massachusetts laws relating to bird protection, especially of sea birds."

(A popular article, confirming Mr. Loomis's statement regarding the wanton destruction of eggs on the Farallons, appeared in 'Leslie's Popular Monthly,' New York, November, 1896, pp. 589-597 — ten illustrations.)

In response to Mr. Loomis's appeal for aid, your Chairman at once wrote to the Lighthouse Board as follows: —

NEW YORK, Oct. 3, 1896.

THE HON. SECRETARY LIGHTHOUSE BOARD,
Washington, D. C.

DEAR SIR: —

As Chairman of the American Ornithologists' Union Committee on the protection of North American Birds, I deem it my duty to call to your attention an abuse that you have power to abate, *i. e.*, the destruction of the eggs of certain sea birds that breed on South Farallon Island.

I send you herewith a copy of a letter received from Prof. Loomis, of the California Academy of Sciences, together with a copy of a paper written by him on California birds in which, on pp. 356-358, he calls attention to the abuse.

I assume that the island in question belongs to the Government, and as the lightkeeper is a public servant in the employ of the Government, drawing a salary for a specific purpose, he has no right to engage in any commercial pursuit, especially when it is so harmful in its effects.

This destructive work can be easily stopped if the Lighthouse Board will issue an order to the keeper of the South Farallon Light prohibiting him from engaging in egging, and also authorizing him to prevent all other persons from egging on the Government property.

I feel assured that your Board are in sympathy with this work, from the fact that some four years since, by authority of the Lighthouse Board, Capt. Henry P. Field, of the Little Gull Island Light, N. Y., was allowed to be appointed as Special Game Protector under the New York State laws for the purpose of protecting the colony of Common Terns (*Sterna hirundo*) and Roseate Terns (*Sterna dougalli*) on Great Gull Island.

The protection afforded this colony of Terns has increased it more than four-fold and necessitates no action on the part of the Lighthouse Keeper except to inform eggers that the birds are protected.

I trust that your honorable Board will see fit to issue the order asked for, and I shall be pleased to have a communication from you to that effect so that I may so report to Prof. Loomis and to our Society.

An immediate reply was received, as follows :

Treasury Department,

Office of the Lighthouse Board.

WASHINGTON, 7 October, 1896.

Mr. WILLIAM DUTCHER,

Chairman of the American Ornithologists' Union Committee,

No. 525 Manhattan Avenue, New York, N. Y.

SIR :—

Your letter of 3d of October, 1896, relative to the sale of wild birds' eggs, by employes of the Lighthouse Establishment, on South Farallon Island, Cal., has been received.

In reply, the Board has to state that your letter, together with its enclosures, was referred this date to the district officers of the 12th Lighthouse District for enquiry, and for a joint report to the Board upon the subject.

The co-operation of the Biological Survey of the Department of Agriculture has been promised in case the appeal to the Lighthouse Board is not successful.

LOWER CALIFORNIA.

Mr. A. W. Anthony, of San Diego, Cal., appealed early in the year to the Committee, through Mr. Stone, for aid to prevent the

extermination of the Herons of Lower California. The following extracts are from letters from Mr. Anthony to Mr. Stone, dated April 5 and May 3, 1896.

"I see by the January 'Auk' that you are a member of the new Committee on Protection of North American Birds. The subject is one in which I have been, and still am, very much interested; of late, however, I have about given up ever seeing anything done for the few Herons that are left. The fact that a new Committee has been appointed would seem to indicate that something was to be done, but *what?* Has any plan been proposed?

"I have for several years thought of all sorts of impossible plans for protection, but could never hit upon anything that I thought would do any good. If we could get one or two journals like 'Harper's Bazar' to cry down the custom of wearing birds, advising something in their place, the fight would be short. I think that about half the women who wear Heron plumes honestly believe they are not feathers; and then, also, education is needed. I often, when I scold at such head-wear, am somewhat taken down by: 'The idea! that 'aigrette' never saw a bird. They are simply manufactured feathers,' etc.

"The slaughter has begun here on this coast in all its glory. Eastern firms are sending out great inducements to anyone they think will hunt or buy for them. Papers like the San Francisco 'Call,' etc., in their Sunday editions, print accounts several columns in length of how someone made some fabulous sum in a few weeks shooting Herons for their plumes 'which are worth several times their weight in gold,' etc., and every such article does vast harm.

"As a result, all the Indians on the Colorado River below Yuma, and many white men also, are hard at work killing off the birds that nest in considerable numbers on the islands in the delta and along the extensive lagoons of that region. This year they have got into Magdalena Bay, where countless thousands have heretofore nested in safety, but at the rate they are now being killed they cannot last long.

"I have carefully avoided publishing anything regarding the very extensive nesting colonies of Terns, Herons, etc., of Lower

California, fearing that it would result in their being set upon by plume hunters, but I think I have had my trouble for nothing. There was a good deal of talk last spring of outfitting one or more large schooners here and taking a lot of hunters to the Mexican coast below San Blas, where lagoons extend for a hundred miles or more along the beach and vast rookeries are known to exist, but other business came up at that time and the schooners did not go; however, they will go as soon as times get dull again.

"I think it is in the power of the Secretary of the Interior, or of Customs, to put a stop to all such work in twenty-four hours. There would be little use, I think, in trying to do anything with them in a political way, but if the right parties were approached personally, *i. e.*, not in their official capacity, it might work, and, if so, would do a great deal toward helping us in the United States. I shall be interested in hearing what your Committee is doing.

"I think a good plan would be for a Committee of some scientific society to prepare a letter, setting forth in strong language the damage done to our Herons in Florida, and the fact of these same plume hunters being now engaged in similar work in Mexico. I think it is now unlawful to take plumes in Florida. If so, that would have its good effect, as they like to follow our lead. You cannot make it too strong, and by appealing to them in person,—the Governors of two or three States,—you would make a strong friend of each. If one could be made to stop the work in his State, I think by a very little work the rest would be induced to follow, and so stop it all over Mexico. Such letter should be endorsed by as many scientific societies as possible, which would make it very impressive. . . .

"We have a very good class of farmers in Southern California, at least; they object strongly to having Hawks and Owls shot, and give them all the protection one could ask.

"Cold storage doesn't cut any figure in this State,—all game must be disposed of at once and possession, even in cold storage, is the same as killing in the close season, even if shipped from Mexico.

"I think the egg traffic should be stopped, however, at San Francisco, especially as it does a great deal of damage to the sea fowl.

"If I can be of use at any time I shall be glad to furnish any aid possible."

Following the suggestion of Mr. Anthony, strong letters to the proper authorities, urging the protection of all Herons, were sent through Mr. Stone, and by Prof. J. A. Allen in behalf of the Linnæan Society of New York, to whose attention the matter was brought. No report of the direct results obtained has been received as yet.

AUDUBON SOCIETIES.

Very valuable work is being done, and will be done in the future, by the Audubon Societies which have been established, or are now in process of organization. The first of these, the Massachusetts Audubon Society, was organized in 1886. As each one is planned on the same lines, and with the same objects in view, a quotation from the prospectus of the Massachusetts Society will serve to give the character of the work hoped to be accomplished.

"The purpose of the Society is to discourage buying and wearing for ornamental purposes the feathers of any wild bird, and to otherwise further the protection of our native birds. We would awaken the community to the fact that this fashion of wearing feathers means the cruel slaughter of myriads of birds, and that some of our finest birds are already decimated, and may ultimately be exterminated by the demand for their feathers. We would make an appeal to all lovers of nature, since by this reckless demand of fashion the woods and fields are being stripped of one of their chief attractions, and the country deprived of indispensable friends to agriculture."

Any person is eligible for membership who is willing to subscribe to the following simple pledge: "Being in sympathy with the principles of the Massachusetts Audubon Society, I hereby agree not to purchase or encourage the use of feathers of wild birds for ornamentation." A very small fee is required of members, the same being used solely for the purpose of printing and disseminating the necessary literature of the subject. Societies similar to the above are now actively working in Philadelphia and Chicago, and I am pleased to state that one is in

process of formation in New York. As a striking sign of the influence of the Massachusetts Society, it may be stated that one of the fashionable milliners of Boston is a member of the Society and, consequently, will not sell the plumage of wild birds to her customers.

A large and influential Society, having for its object the protection of birds has existed for some years in England, the President being the Duchess of Portland, and the Secretary, Mrs. F. E. Lemon, Hillcrest, Redhill, England. The literature issued by the English Society has been sent to your Committee, and is found to be very complete. A large part of it, with some modification, could be adopted by the American Societies to advantage.

At a recent International Congress for the Prevention of Cruelty to Animals it was decided to found, in the various countries represented at the Congress, children's societies for the protection of those birds which are now killed in such vast numbers for the sake of adorning with their plumage feminine hats and dresses.

While legislation may be of vast benefit in protecting all bird life, yet we firmly believe that the true solution of the problem will be the education of the children of our schools, both public and private. They should be taught in every grade, from the kindergarten to the college, not only the æsthetic but the economical value of our birds. To this end the Division of the Biological Survey, United States Department of Agriculture, has issued a very valuable paper (Circular No. 17) which should be in the hands of every teacher and educator on this continent, with an urgent appeal that the suggestions in the circular be carried out to the fullest extent. When we have educated our children laws will be unnecessary.

In conclusion, your Committee asks to be continued with the power to add to its numbers from the members of the Society, and suggests that each one of the 600 members of the Union shall take an active interest in this work during the coming year, especially in distributing 'Circular No. 17,' and in the formation of local societies in the localities in which they may reside.

Respectfully submitted:

WILLIAM DUTCHER,
Chairman.

EVIDENCE SUGGESTIVE OF THE OCCURRENCE OF
'INDIVIDUAL DICHROMATISM' IN
MEGASCOPS ASIO.

BY ARTHUR P. CHADBOURNE, M. D.

*Plate I.**(Concluded from Vol. XIII, p. 325.)*

As to the cause of the altered color:—The exclusive diet of liver seems to be the only unusual feature in the conditions under which my two Owls lived, compared with other birds of prey in captivity; or at least, it is the most noticeable one. We have already seen that the change in the female was first apparent after this food had been alone used for about three weeks, and also that the smaller Owl a little later showed signs of a similar change; while almost an equal length of time after the liver had been discontinued, there seemed to be a gradual loss of the red tint. Was this chance, or is it a hint, as to the cause of the red brown color? The liver is well-known to contain an extremely large amount of coloring matter, and to play an important part in the production of the majority of the different pigments of the organism, either directly or indirectly. Moreover, it is a fact that the color of the plumage can be altered by certain kinds of food—thus, some breeds of the Canary (the 'Yellow Norwich' among others), change from a pure yellow to a bright orange, if red pepper is daily mixed with their food; and this too without any feather loss, as I have myself seen. Who can tell the effect of a continued diet of liver, until he has tried the experiment—on an Owl?

The way in which the colors of feathers are produced can only be briefly mentioned here, but a few words on the subject may not be out of place. In general, feather-color is due (1) to pigmented matter of one, or of several colors; (2) to the physical effect of the structure of the part on the light rays; or (3) to both of the above combined. Pigment absorbs all kinds of light except that on which its color depends, thus in a brown feather the only unabsorbed light rays are those which produce the sensation of brown, and these alone reach the eye. Black results from the complete absorption, or deflection of all light rays; while if none

of the spectral colors fail to reach the eye, the combination produces white. In addition, an almost endless variety of colors, shades and tints are caused by mixtures of different 'pigments,' much in the way we use different paints. The action of the structure and form of the colored parts is, on the other hand, purely physical; for example, the lateral branches, forming the vane, may have their surfaces so shaped, as to produce the effect of a multitude of small prisms, by which the different colored rays are made to diverge, only those of a certain color reaching the eye; perhaps, as believed by Gadow, slight movements bring different kinds of rays successively to the eye, and iridescence is the result.

Color-change in the individual feather,—or, in a broader sense, in the plumage as a whole, without adequate new feather-growth (*i. e.*, without a so-called 'moult'),¹ seems to have received little or no attention from ornithologists in this country during the past quarter of a century or more.² Yet about 1850, when the theory of "color-change without moult" was revived by Schlegel and Martin independently, German ornithological literature teemed with articles on this subject; and it had been proved even prior to this that the plumage might be completely altered in color without feather-loss or new feather-growth. And such color-change also seems to be normal, and probably recurs at regular intervals in certain individuals and conditions among various species. It has been shown in connection with the subject of the 'Spring Plumage of the Bobolink,'³ that feather-change and color-change are two distinct processes; but the point which concerns us at present is that *a change in the color of the feather, or even of the whole plumage, not only may, but has been proved to occur normally without increase of feather-loss.*

The color of my Owls was evidently due to pigmented matter, and was practically independent of the physical action of the structure of the part on the light rays. Morphologically, one

¹ The 'aptosochromatism' of Coues (*Cf.* Auk).

² The above was written in 1894, before the recent articles of Allen, Chapman, Stone and others had appeared.

³ 'The Spring Plumage of the Bobolink.' Auk, Vol. XIV, pp. —. [The publication of this paper is necessarily deferred till the April number.—EDD.]

black, and at least two varieties of brownish coloring matter (so-called 'pigments'), were present, not only after the red-brown shade appeared in the plumage, but also in every feather of the gray type, except three of the 'first' and one from the mature gray plumage.

The *black pigmented matter* was made up of oblong-oval or elliptical granules, never of small rods, as in the domestic pigeon; but it is well-known that the shape varies in different kinds of birds. The amount of black granular matter was always relatively small, and it was chiefly confined to the deeper cell layers. Isolated spots of true black were frequent in the central cells, while around them there was often much dark brown.

The *brown pigmented material* was found in the form of a pale, nongranular, diffused stain, extending through all kinds of feather tissue; and also as brown granules, of various tints and sizes, which were usually in narrow lines or groups, instead of being generally distributed, like the nongranular stain. The two extremes were connected by a complete series of intermediate forms, showing every gradation between the dark chocolate and the ochraceous tint; while the size of the granules also varied considerably, and it was at times not easy to distinguish the homogeneous from the very finely granular. The black and very dark brown granules perhaps also intergrade, but on this point I cannot speak with certainty.

As the red phase developed, more and more red-brown granules and diffuse stain *seemed* to be present in the feathers, at times obscuring, or completely hiding the dark markings beneath (Plate I, fig. 1), or grouped and scattered about the black in the deeper layers, caused various shades and tints of brown and tawny. As a rule the seemingly black color proved to be the result of either a dense mass of dark brown granules, of the greater thickness of the darker portion of the specimen, or of both continued, plus an underlying area of true black in the deep tissues. The pure rufous and bright tawny portions had the coloring matter chiefly in the more superficial cell layers, and either little or no true black beneath; while the streaks and lines of brownish granules suggested the 'bast-fibre layer' of certain plants, and the tawny effect was heightened by the diffuse nongranular stain (Plate I, fig. 4, b

and *c*, fig. 5, and cut in text). In the white parts of the vane, the only color was a pale straw-yellow almost entirely limited to the outer (peripheral) cellular tissue, and probably caused by the



Two Barbs from near A., pl. I, fig. 1. Groups of dark colored cells are seen in some parts of the barbs. (Zeiss 16mm. apochromat. and No. 6 comp. oc.)

homogeneous stain (Plate I, fig. 1). The downy parts of the contour feathers had nodular enlargements at regular intervals, in which the coloring matter was usually collected (Plate I, fig. 4, *d*); in other specimens the nodes were almost colorless, and the internodes pigmented (Plate I, fig. 4, *a*). There seems to have been an absolute loss of black, as well as of the darkest brown granules

during the progress of the change to the reddish phase, for markings were absent, not merely hidden by overlying color, which had been distinct in corresponding specimens of the gray phase.

Feathers from twenty-five specimens of *Megascops asio*¹ in the writer's collection, in all stages of plumage, were indistinguishable from those of the dichromatic female in corresponding dress, both the black and also the various shades of brownish pigmented matter being present in the large majority of specimens examined; but differing in relative amount and distribution.

¹ The material examined was as follows:

CAST-OFF FEATHERS FROM MY TWO OWLS.

First plumage	15 feathers.
Typical gray phase	9 "
Intermediate	56 "
During most marked stage of red-brown	10 "
Specimens from female after death of male	3 "
From skin of female	127 "
Total	220 "

CAST-OFF FEATHERS FROM SKINS OF M. ASIO.

2 specimens	first plumage, typical gray	91 feathers
1 "	" " " red	17 "
7 "	adult " " gray	114 "
9 "	" " intermediate	102 "
4 "	" " typical red	59 "

23 specimens

383 feathers

	Typical gray.	Intermediate.	Typical red.	Total.
Red-brown pig- m'ntd matter present	206=(95%)	148=(100%)	226=(100%)	580=(98%)
Red-brown ab- sent	13=(5%)	0=(0%)	0=(0%)	13=(2%)
Total feathers examined.	219=(36+%)	148=(25%)	226=(38%)	593

In short, so far as shown by the present material and methods of examination, the dichromatism of *Megascops asio*, both in the species and also in the individual, is a quantitative difference in the distribution and relative amounts of the same morphological varieties of pigmented matter; and there is probably also an absolute, as well as a relative difference in the amount of coloring material in the various phases.

Of the chemical and other relations between the pigmented matter, I shall say but little now. The usual qualitative tests and also the methods used by Krukenberg show that 'zoöruhin' (Krukenberg), and 'zoömelanin' were present in almost all the feathers. No other coloring matter was detected chemically; but differential staining brought out marked differences in the affinity of the various brown granules for certain dyes, and also in the color-reactions of the black and brown granules. The microspectroscope gave spectra agreeing with Krukenberg's outlines for 'zoöruhin.'

That the pigmented matter represents successive steps in a process of retrograde or destructive metamorphosis, seems not unlikely. The subject offers an attractive field for speculation, but one upon which we will not enter at present.

In conclusion, my two pets have, I think, fully proved (1) that a change from the gray to the red phase of plumage did, in this case, actually take place in the same Screech Owl (*M. asio*); (2) that the change in question was not accompanied by increased feather-loss or new feather-growth (i. e., no 'moulting' occurred); (3) that, so far as known the double phase was in no way due to age, sex or season; (4) and that almost beyond question it was an instance of true 'individual dichromatism.'

EXPLANATION OF PLATE.

Figure 1. Feather from skin of 'dichromatic' female *Megascops asio* (coll. A. P. C. No. 4396), showing the colors and parts illustrated in the following figures. Slightly enlarged. Drawn and colored from nature by W. H. Kaula.

Figure 2. Barb from white portion of feather near B fig. 1. (Zeiss 4mm. apochromat. obj. and No. 4 comp. ocular. Mounted dry.)

Figure 3. Transverse section through barb from near D fig. 1. Shows distribution of pigmented matter in the deep and superficial cells. (Zeiss apochromat. obj. and No. 4 comp. oc.—Celloidin and balsam.)

Figure 4. Variations in the barbules of the same feather.

A, from near fig. 1 E.—Pigmented matter chiefly in internodes.

B, from near fig. 1 F.—No true black coloring matter present.

C, from near fig. 1 G.—Shows 'bast-fibre' arrangement of brown granules.

D, from near fig. 1 H.—Pigmented material almost lacking in internodes. (Zeiss 4mm. apochromat. obj. and comp. ocular No. 4.—Feather mounted dry.)

Fig. 5. A barbule much like that shown in C fig. 3, but more magnified. (Zeiss 4mm. apochromat obj. and No. 6 comp. ocular. Mounted dry.)

ZAMELODIA AGAINST HABIA.

BY DR. ELLIOTT COUES.

IN creating the new generic name *Zamelodia* I said (Bull. Nutt. Orn. Club, V, 1880, p. 98): "The genus *Hedymeles*, Cab., 1851, was based upon this species [*i. e.*, *Goniaphæa ludoviciana*], but cannot be used for it because of *Hedymela*, Sundev. (Öfv. Vet Akad. 1846, 223) for another genus of birds, the difference being merely dialectic. Cabanis seems to have proposed it simply because 'Habia Reich. 1850' was not classically correct. But *Habia* or *Abia* is said to be antedated by *Habia*, Lesson, 1831, and therefore untenable."

In an article entitled '*Habia* against *Zamelodia*,' Dr. L. Stejneger said (Auk, Oct. 1884, p. 366): "It is Agassiz (Nomcl. Zool., Aves, p. 34 (1843)) who first quotes 'Habia Less. Tr. d' Ornith. 1831,' — afterwards (Index Univers., p. 1 (1846)) 'correcting' it into *Abia*; but an inspection of Lesson's 'Traité,' etc., will show that *Habia*, as used by him, is only the French vernacular name applied to the birds of the genus *Saltator* Vieill., and Agassiz might just as well have cited 'Habia Vieill., Analyse, 1816,' for that is the place where Vieillot himself applies the name as the vernacular equivalent of the systematic name *Saltator* proposed simultaneously."

My duly appreciated critic then proceeded to prove "that *Habia* was not used by Lesson or Vieillot as a systematic generic

term." But in drawing the hasty inference from that fact, that "Reichenbach was, therefore, fully justified in applying it [*i. e.*, the name *Habia*] as he did, viz., as the name of the genus having the Black-headed Grosbeak for type," my commentator proved nothing but the fact that his knowledge of the case was deficient. Dr. Stejneger evidently thought he had put *Zamelodia* to sleep forever; but nothing is easier than to show his whole contention to be wrong. Meanwhile, *Habia* has displaced *Zamelodia* unjustly, in the A. O. U. Lists of 1886 and 1895, and very generally among American writers since 1884.

The Baron Georges Léopold Chrétien Frédéric Dagobert Cuvier's 'Règne Animal' was published in 1817, and in other years. In an edition of the 'Animal Kingdom' which was published in London in 1849, the ornithology of which was edited by Edward Blyth, *Habia* appears on p. 711 in the "Index of scientific names," as distinguished from the "Index of popular names"; and on p. 184 can be read in plain English as follows:—

"THE FINCH-TANAGERS (*Habia* Vieillot)—

"Have a thick, bulging, conical bill, as broad as high, the upper mandible of which is rounded above.

"Such are *Tan. flammiceps*, Pr. Max., *T. superciliosa*, *psittacina*, and *atricollis*, Spix, etc."

Now it is true, as Dr. Stejneger contended, and as nobody ever denied, that all the vernacular names in certain works of Vieillot and of Lesson are printed in a type which distinguishes them from the Latin names. Nobody doubts that 'Habia,' as used by Vieillot and Lesson, was intended as a French word (after the Spanish-American '*Habia*' of Azara), and as a vernacular equivalent of the genus-name *Saltator*; perhaps Cuvier himself so intended it in 1829. But what has that to do with Cuvier's (or his editor's later use of the name *Habia* as a systematic generic term for *Saltator* or anything else? Nothing. All the vernacular names in the English version of 1849 are typographically distinguished; and in the present case the author (or editor) inconspicuously adopts Vieillot's vernacular word *Habia* as the Latin name of a genus which includes certain South American Tana-

gers now referred to *Saltator* or elsewhere. *Habia* may or may not be tenable for some such birds; but obviously it cannot stand for any others; and consequently, on the principle that "once a synonym always a synonym," or by our rule for the rejection of homonyms, *Habia* Reich. 1850 falls to the ground, dragging with it the *dissecta membra* of Dr. Stejneger's worsted case.

According to the admirably lucid manner in which Dr. Stejneger's 'Analecta Ornithologica' were wont to be formulated, even when their author was mistaken, the present case may be thus stated:—

Genus *Zamelodia* COUES.

- 1850.—*Habia* REICH., Av. Syst. Nat. pl. lxxviii, fig. 14, June 1, 1850; type *Guiraca melanocephala* Sw.; *nec apud* CUVIER, 1849; *nec* AGASSIZ, 1843; *nec* *Abia* AGASSIZ, 1846. (*Nec* *Abia* LEACH, GIEBEL, in entomology).
1851.—*Hedymeles* CAB., Mus. Hein. i, June, 1851, p. 152; type *Loxia ludoviciana* LINN.; *nec* *Hedymela* SUND., 1846.
1880.—*Zamelodia* COUES, Bull. Nutt. Orn. Club, V. Apr. 1880, p. 98; type *Loxia ludoviciana* LINN.
1884.—*Habia* STEJNEGER, Auk, Oct. 1884, p. 367, *errore*.
1886–95.—*Habia*, A. O. U. Lists, 1886–95, *errore*, and of misled American writers generally since 1884.

I gladly avail myself further of the incomparable Stejnegerian method of exposition to state that the species, according to Coues's Key, 2d–4th eds. 1884–90, p. 389, will stand—not as Dr. Stejneger, *l. c.*, says they will stand—but as:

244. *Zamelodia ludoviciana* (LINN.). ROSE-BREADED GROSBEAK.

245. *Zamelodia melanocephala* (SWAINS.). BLACK-HEADED GROSBEAK.

Dr. Stejneger's acquirements in Greek etymology seem to have failed him in discussing the meaning of *Abia*, as the Agassizian emendation of *Habia*, in 1846. The learned gentleman says that *Abia* would seem to be derived from *ἄβιος*, in the meaning of 'poor, without food.' He may be glad to be informed that *Abia* is directly from the Greek *ἀ* privative and *βία*, force, power, might, bodily strength, being first introduced in zoölogy by Dr. W. E.

Leach for a genus of hymenopterous insects of the family Tenthredinidæ, and subsequently (1856) used by Dr. Giebel for a genus of neuropterous insects. While I am pleased to be able to compliment him upon the discovery that this entomological word "has no connection with the original *habia*," he is mistaken in saying that *Abia* and *Habia* are not the same word in ornithology; for *Abia* is simply a variant of *Habia*, introduced by Agassiz upon a mistaken notion of the etymology and correct form of Azara's name *habia*. If Dr. Stejneger will look in the Index of Gray's 'Handlist', he will find both forms in ornithology. The literal identity of *Abia* Leach and *Abia* Agassiz is simply fortuitous; the former is of Greek origin; the latter is not. I stated the matter correctly, some years ago, in the 'Century Dictionary': see under the words *Abia*, *Habia*, and *Zamelodia*.

PRELIMINARY DESCRIPTIONS OF NEW BIRDS FROM
MEXICO AND GUATEMALA IN THE COLLEC-
TION OF THE UNITED STATES DEPART-
MENT OF AGRICULTURE.

BY E. W. NELSON.

THE present paper is based upon specimens of Mexican and Guatemalan birds obtained mainly by myself and my assistant, Mr. E. A. Goldman, during explorations conducted for the Biological Survey of the U. S. Department of Agriculture during the last five years. In addition to this collection, numbering between four and five thousand specimens, I have had free access to the National Museum series of Tropical American birds for purposes of comparison. In the course of our work we have traversed Mexico from one end to the other, and have crossed the country six times from sea to sea. Specimens were obtained in many districts never before visited by an ornithologist, and although the collections were not exhaustive in any given place, yet the aggregate of series from numerous localities scattered over a large part of the country has afforded a great amount of interesting material.

Mexico covers a wide range of topographic and climatic conditions, from tropical coasts to snowy summits of gigantic volcanoes. The coast lowlands are humid in some parts and very arid in others. Above these rise mountain slopes that are bathed in rain and mist during much of the year; and still beyond are the arid desert table-lands of the interior. As might be supposed, these differences in climate and other physical features result in various well defined life zones and give great variety to the animal and vegetable life. My knowledge of these climatic and topographic features has been of the greatest service in enabling me to define with some accuracy the geographical races herein described. In no instance is a bird described as new unless the differences from its nearest relative are associated with definite changes in the physical surroundings. A detailed study of the country with modern methods will define the life areas of this region, and the corresponding variation of many species into geographical races will be more definitely known.

The present descriptions are merely preliminary to a fuller account that will be given in a future publication.

I have to express my obligation to Dr. C. Hart Merriam, Chief of the Biological Survey, under whose direction the field work was done, for the opportunity to report upon the material obtained. During the preparation of this paper I have had the most cordial assistance from Mr. Robert Ridgway, Curator of the Department of Birds in the National Museum, whose thorough knowledge of North American birds was placed freely at my service, enabling me to do the work in a fraction of the time that otherwise would have been necessary. I am indebted also to Mr. Charles W. Richmond, Assistant Curator of Birds in the National Museum, for assistance in a number of ways.

Throughout this paper the measurements given are in millimeters.

***Dendrortyx oaxacæ*, new species. OAXACA WOODGROUSE.**

Type, No. 155565, U. S. Nat. Museum, Dept. Agric. coll., ♂, Totontepec, Oaxaca, Mexico, July 24, 1894. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 2227).

Distribution.—Mountains of eastern Oaxaca from the Cerro San Felipe, near Oaxaca City, to Mount Zempoaltepec, Oaxaca.

Description of type.—Top of head and nape, including crest, black. The white cheek stripe extending from below eye backward along side of gular black patch, and the white superciliary line, so prominent in the forms of *D. macrourus*, are very indistinct in this bird. The white borders to the feathers also so conspicuous on the back of the neck in that species are absent in *D. oaxaca*. The feathers of neck, below the black throat patch, and on sides of breast are mostly dark chestnut with very narrow ashy borders along their sides, thus producing an almost uniformly chestnut area. The entire bird is darker than *macrourus* and is characterized by a suppression of the lighter markings seen in that species.

***Dendrortyx macrourus griseipectus*, new subspecies.**

GRAY-BREASTED WOODGROUSE.

Type, No. 155560, U. S. Nat. Museum, Dept. Agric. coll., ♂, Huitzilac, Morelos, Mexico, Dec. 30, 1892. Collected by E. W. Nelson (Orig. No. 628).

Distribution.—Heavy oak forest on the Pacific slope of the Cordillera, in the States of Morelos and Mexico.

Description.—Basal half or two thirds of breast feathers with narrow rufous shaft-streaks almost entirely concealed by broad, dingy gray borders of overlapping feathers; general color of breast nearly uniform dingy gray; back, rump, wings and flanks darker and more olive than in *macrourus*; flanks with very indistinct, narrow shaft-lines of rufous; size of *macrourus*.

The type of *Dendrortyx macrourus* was described and figured in Jardine and Selby's 'Illustrated Ornithology' (text to plates 38 and 49) and its range given as 'Mexico'. The description given in the work quoted applies most closely to birds from the mountains about the Valley of Mexico.

The *Tetrao marmorata* of La Llave, from the mountains about the same Valley, is undoubtedly a pure synonym of *macrourus*. Taking birds from these high, pine and fir clad mountains as typical representatives of the species, specimens from other parts of southern Mexico show variations worthy of recognition as geographical races.

***Dendrortyx macrourus striatus*, new subspecies. GUERRERO**

WOODGROUSE.

Type, No. 155567, U. S. Nat. Museum, Dept. Agric. coll., ♀, mountains near Chilpancingo, Guerrero, Mexico, Dec. 24, 1894. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 2436).

Distribution.—The mixed forest of oaks, pines and firs on the high Cordillera of Guerrero above 8000 feet.

Description.—Rather smaller than the other forms, with a longer, slenderer beak. The most conspicuous character is the heavy rufous shaft-lines of the feathers along the entire flanks, which do not become obsolete posteriorly as in the others. The back is very dark and the rump and upper tail-coverts lack the mottling of whitish conspicuous in the others. The tail also is darker.

***Colinus salvini*, new species. SALVIN'S BOB-WHITE.**

Type, No. 155503, U. S. Nat. Museum, Dept. Agric. coll., ♂, Tapachula, Chiapas, Mexico, March 10, 1896. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 3634).

Distribution.—The grassy coast plains between Tapachula and San Benito, Chiapas, Mexico.

Description of male.—Head, neck and fore breast dull black, feathers on back part of crown and nape spotted with whitish and brown along borders; top and sides of shoulders dull rufous, the feathers heavily bordered with dull, dark gray; middle of back, rump and upper tail-coverts blackish, the ends of the feathers with rufous brown mottling and gray edges; wing-coverts with irregular rufous shaft-lines, their sides grayish and brown with white spots along edges; scapulars like back but with conspicuous white spots along borders; primaries and secondaries grayish brown with lighter mottling of fulvous and gray on outer part of secondaries; lower surface of body, below black area on breast, dark rufous, the feathers faintly edged or washed with blackish giving a dingy shade to main color; lower tail-coverts mottled, or coarsely variegated with rufous, blackish and white.

Dimensions.—Wing 100, tail 54, culmen 15, tarsus 29.

Colinus coyolcos is the nearest relative of this bird, but in comparing eleven specimens of each species, including both sexes, it appears to be perfectly distinct.

It is named in honor of Mr. Osbert Salvin, one of the authors of the 'Biologia Centrali-Americana,' which has added so much to our knowledge of Mexican and Central American bird life.

***Colinus godmani*, new species. GODMAN'S BOB-WHITE.**

Type, No. 155493, U. S. Nat. Museum, Dept. Agric. coll., ♂, Jaltipan, Vera Cruz, Mexico, May 2, 1896. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 3719).

Distribution.—The coast plains about Jaltipan and Minatitlan, Vera Cruz, and thence north to Lake Catemaco, in the same State.

Description of male.—Lores, superciliary stripe, chin, throat and sides of head up to ear-coverts white; a black band from near angle of gape, below eye, running backward over ear-coverts to join black area of neck; forehead and line along each side of crown black; middle of crown and nape blackish with brown and gray edgings to feathers; hind part, sides and lower part of neck, with breast, glossy black; shoulders and fore part of back chestnut, with narrow borders of black and then gray on each feather; lower back, rump and upper tail-coverts blackish, finely marked and mottled with olive, rufous brown and grayish white; the general color much darker than in *C. graysoni*; wing-coverts irregularly marked with black, with white spots on edges of feathers; tertials similar in general color to rump but with distinct white spotting along edges; quills dull brown with ashy borders on outer vanes; secondaries brown, transversely mottled with grayish and buffy on exposed parts; flanks, abdomen and lower tail-coverts light chestnut, with heavy black borders on feathers of flanks and abdomen; these markings producing a broadly streaked pattern; under tail-coverts black spotted; feathers on sides of crissum spotted with white on each vane near tip.

Dimensions.—Wing 100, tail 55, culmen 15, tarsus 29.

This is a very distinct species and one of the most beautiful in the genus. It is based upon five adult specimens and is named in honor of Mr. F. DuCane Godman in recognition of his valuable services to Mexican and Central American ornithology, as joint author with Mr. Salvin of the 'Biologia Centrali-Americana.'

***Colinus insignis*, new species. GUATEMALAN BOB-WHITE.**

Type, No. 155516, U. S. Nat. Museum, Dept. Agric. coll., ♀, Nenton, Guatemala, December 16, 1895. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 3299).

Distribution.—Guatemala, near Nenton (and Valley of Comitán, in Chiapas, Mexico?).

Description of female.—Forehead, lores and superciliary stripe united in a buffy area; chin and throat of same color; feathers on top of head and nape black, tipped with chestnut, and edged on sides with buffy gray; a black line from angle of gape to ear-coverts; ear-coverts dark brown; feathers on back of neck and fore part of shoulders chestnut, heavily marked along sides with black and white spots and blotches; feathers on back, rump and upper tail-coverts blackish, irregularly barred and marked with dull, whitish gray and brown, and narrowly edged with

whitish which, contrasting with the blackish centres, produces the main pattern of coloration; tertiaries and wing-coverts similarly colored, but bordered with pale fulvous on inner webs; the fulvous borders heaviest on tertiaries; tail slaty gray, with vermiculations of paler gray and brown; quills dull brownish, edged on outer borders with ashy; sides and under part of neck with fore part of breast conspicuously marked with white, black and dull chestnut; sides of breast and flanks dull chestnut, the feathers marked on each side near the tip by a black area succeeded by a white spot; under tail-coverts chestnut with narrow black shaft-lines which broaden near ends of feathers.

Dimensions.—Wing 104, tail 58, culmen 16, tarsus 29.

While in the Valley of Comitan, Chiapas, we were told of the presence there of a species of Bob-white, but saw none during our short stay. At Nenton, in Guatemala, a locality half a day's journey beyond the Valley, we secured a single adult female which is very different from the female of any other known bird of this genus, and as none of the various species taken in the surrounding region show a gradation toward it, I feel justified in giving the new bird specific rank.

***Colinus graysoni nigripectus*, new subspecies. PUEBLA**

BOB-WHITE.

Type, No. 155522, U. S. Nat. Museum, Dept. Agric. coll., ♂, Atlixco, Puebla, Mexico, August 9, 1893. Collected by E. W. Nelson (Orig. No. 1460).

Distribution.—Plains of southern Puebla.

Description.—Contrasted with typical *C. graysoni*, *nigripectus* may be distinguished by its paler shade of rufous both above and below, by the greater width of the black area bordering the white of throat and by its smaller size. The black of the neck extends from the border of the white throat area down over the fore part of the chest and also reaches farther back along the sides of the neck.

Dimensions.—Wing 110, tail 60, culmen 16, tarsus 30.

We found typical *graysoni* ranging south to the northern end of the Valley of Mexico. Thence southeasterly to the City of Puebla none were seen, but when we reached Atlixco the present subspecies was common on the cultivated plain.

This subspecies is based upon five adult specimens.

Cyrtonyx merriami, new species. MERRIAM'S PARTRIDGE.

Type, No. 155543, U. S. Nat. Museum, Dept. Agric. coll., ♂, Mt. Orizaba, Vera Cruz, Mexico, March 21, 1894. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 1830).

Distribution.—East slope of Mt. Orizaba, Vera Cruz.

Description.—The general pattern of head markings of *merriami* is much as in *montezumæ*, except that the black chin and throat area extends down to the chestnut on the lower neck and breast with no intervening white collar; the white superciliary band which extends under the black throat patch as a white collar in *montezumæ*, ends on each side of the neck in *merriami*. Bluish-black auricular patches extend forward on the sides of neck and form a broad junction with the black of the throat. The crown and crest are darker than in *montezumæ*, the light shaft-streaks on the back of the neck and shoulders are buffy whitish, becoming more and more intensely colored posteriorly, until on the longer scapulars and tertiaries they are almost or quite chestnut; the webs of the tertiaries are gray, becoming browner near the tips, and are crossed by several transverse, oblong black spots which are much narrower and more like bars than are the corresponding markings in *montezumæ*; the back and rump are blackish with golden buffy shaft-lines, brown mottling and narrow ashy edgings to the feathers; the upper tail-coverts are ashy with heavy rusty shaft-lines and several transverse black bars on each web of the feathers; the chestnut area of the breast and belly is as in *montezumæ*, but is of a lighter shade; the sides of the breast and flanks are slaty gray, lighter than in the latter species and marked with numerous round white spots about half the size of those in that bird. On the posterior portion of the flanks the white spotting is replaced by spots of buffy and chestnut. The rest of the lower parts are black as in *montezumæ*.

It is named in honor of Dr. C. Hart Merriam, under whose direction our work in Mexico has been done.

This Partridge appears to be closely related to *Odontophorus meleagris* of Wagler (Isis, 1832, p. 277), but differs in having the white spots of the flanks on a background of ashy gray instead of black. Like that species it lacks the white collar on the neck, which in *montezumæ* separates the black of the throat from the chestnut of the breast. Heretofore *meleagris* has been placed as a synonym of *montezumæ*, but the discovery of *C. merriami* with the same general style of markings given for *meleagris*, indicates that the latter is probably a well-marked species which has failed of recognition through lack of material. It was described from Mexico and should take its proper place in ornithological literature.

Megascops marmoratus, new species. MARBLED SCREECH
OWL.

Type, No. 155676, U. S. Nat. Museum, Dept. Agric. coll., ♀, Catemaco, Vera Cruz, Mexico, May 4, 1894. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 2002).

Distribution.—The only known specimen of this bird was taken in the sparsely wooded country bordering the northern shore of Lake Catemaco, Vera Cruz, at an altitude of about 1200 feet.

In size and general style of color this species is most closely related to *Megascops guatemalensis*, from which it may be distinguished by its generally paler and grayer coloration, and by the finer dark shaft markings, both above and below. The general color of the dorsal surface is light sepia brown, darkest on head and shoulders. The gray and dark brown, or dull fulvous, mottlings on both dorsal and ventral surfaces are much finer than in *guatemalensis*. The legs to toes are thickly barred with white and reddish brown, the latter color being much paler than in the last named species. Toes bare.

From *M. brasiliensis*, as represented in the National Museum collection from various Central American localities, *marmoratus* may be distinguished readily by the absence of the dull yellowish, or fulvous, suffusion which pervades the plumage, just below the surface, in that species.

Momotus mexicanus saturatus, new subspecies. COAST
MOTMOT.

Type, No. 155151, U. S. Nat. Museum, Dept. Agric. coll., ♂, Tehuantepec City, Oaxaca, Mexico, April 29, 1895. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 2618).

Distribution.—Pacific coast district of Mexico from Mazatlan, Sinaloa to Tonalá in Chiapas.

Description.—Contrasted with typical *M. mexicanus* the new form is larger and has the crown deeper rufous; the greens of the back are deeper and more olive; the rufous of the crown and neck extends farther over the shoulders, and the black area of the ear-coverts is more broadly edged with blue. The type measures as follows: Wing 126, tail 200, culmen 44, tarsus 29. A typical male of *mexicanus* measures: Wing 116, tail 170, culmen 39, tarsus 25.

Momotus mexicanus was described from specimens obtained at Temiscaltepec in the State of Mexico. Having before me a con-

siderable series of these birds I find that specimens from the hot, dry 'tierra caliente' midway on the mountain slopes draining to the Pacific, from Etzatlan in Jalisco to southern Puebla and adjacent parts of Oaxaca, agree in being smaller and duller colored than those from the more humid districts near the coast, between Mazatlan and Tonalá. The bird of the interior being the typical form, it remains to describe that of the coast region.

Dryobates sanctorum, new species. CHIAPAS WOODPECKER.

Type,^{*} No. 154889, U. S. Nat. Museum, Dept. Agric. coll., ♂, Todos Santos, Guatemala, December 30, 1895. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 3321).

Distribution.—High mountains of Chiapas and Guatemala.

Description.—The lower surface is an intense smoky brown, and the outer tail-feathers have their light areas nearly as dark. The dorsal stripe in most cases is like the ventral surface but is rather more fulvous. The type of *sanctorum* measures as follows: Wing 111, tail 64, culmen 25, tarsus 21. An average male from the region whence came the type of *jardinii* measures: Wing 127, tail 80, culmen 28, tarsus 21.

In the collections made by us in Mexico and Guatemala are two distinct Woodpeckers of the *jardinii* style. One series of eight specimens from the mountains of central Mexico, taken at localities ranging from the State of Michoacán to the mountainous borders of the Valley of Mexico and Mt. Orizaba, Puebla, are typical *jardinii*. South of this region, in the mountains of Oaxaca, these birds become extremely rare. Crossing the Isthmus of Tehuantepec and entering the high mountains of interior Chiapas and Guatemala, a smaller species is found which has hitherto been referred to the central Mexican bird, *jardinii*. Ten specimens before me from Chiapas and Guatemala, are very distinct from *jardinii*, being decidedly smaller and very much darker in color. Specimens in the National Museum from these two regions support the conclusions drawn from our collection.

Antrostomus ridgwayi, new species. RIDGWAY'S WHIP-

POOR-WILL.

Type, No. 154754, U. S. Nat. Museum, Dept. Agric. coll., ♀, Tlalkisala, Guerrero, Mexico, November 29, 1894. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 2370).

Distribution.—Nothing is known of the range of this species, except that the type was taken in the mountains of interior Guerrero.

Description.—Crown dull grayish with a narrow black median line and fine parallel lines on each side; back, rump and tail, with exposed part of closed wings, gray like the crown and finely maculate with darker; back and rump marked with narrow, dark shaft-lines; scapulars marked with small, roughly triangular black spots bordered with buffy; gray of tail indistinctly and irregularly barred with darker, and feathers tipped narrowly with buffy; chin, throat and sides of head grizzled gray, darker than crown; neck encircled by a golden buffy collar, bordered along front below by a narrow whitish band; breast nearly as dark as throat; abdomen, flanks and lower tail-coverts pale buffy barred with gray and brown, the light color predominating. The type and only known specimen is an adult female.

Size.—Wing 153, tail 116, culmen 18, tarsus 16.

This form is readily distinguishable from any other known Mexican species of the genus by its generally lighter or grayer color and by the conspicuous, pale rufous or golden-buffy collar which completely encircles the neck.

***Delattria pringlei*, new species. PRINGLE'S HUMMER.**

Type, No. 155219, U. S. Nat. Museum, Dept. Agric. coll., ♂, from 15 miles west of Oaxaca City, Oaxaca, Mexico, September 14, 1894. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 2288).

Distribution.—Mountains of central-western Oaxaca and thence into Guerrero.

Description.—Similar to *henrici* and *margarethæ* in general coloration, but differing in the color of the throat patch, which is royal purple. Using Ridgway's color nomenclature, the three species named above may be distinguished by the following colors of the throat patch.

D. henrici, phlox purple.

D. margarethæ, violet.

D. pringlei, royal purple.

We obtained specimens of *D. henrici* at Mt. Zempoaltepec in eastern Oaxaca. From central Oaxaca to central Guerrero *D. pringlei* was found, and in the interior of the latter State *D. margarethæ* was taken. Thus it appears that the three species occupy contiguous areas. This species is dedicated to the field botanist, Mr. C. G. Pringle, whose work in Mexico is so well known.

***Platypsaris aglaiae sumichrasti*, new subspecies.**

SUMICHRAST'S BECARD.

Type, No. 154701, U. S. Nat. Museum, Dept. Agric. coll., ♂, Otatitlan, Vera Cruz, Mexico, April 15, 1894. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 1926).

Distribution.—The hot coast lowlands of central Vera Cruz and thence southward to Guatemala.

Description.—Adult male with entire top and sides of head and neck, including back to rump, uniform glossy black; rump dark ashy; tail and wings blackish brown. There is a large, dark rose-colored throat patch, and the crissum is dull, dark fulvous. The rest of lower parts are dark slaty, somewhat lighter on the flanks and abdomen. The females, compared with those of *aglaiae*, may be known by their more intense coloration.

In the 'Revue Zoologique,' 1839, p. 98, Lafresnaye describes *Pachyrhynchus aglaiae* and gives its habitat as 'Mexico.' He says that it is "above slate color, the nape and rump partly rufescent, pileum entirely black, forehead more grayish."¹ Beneath pale mouse gray, the chin grayer, the foreneck and breast with a broad spot of intense rose color." The rufescence of nape and rump mentioned above are due to the immaturity of his specimen.

In 'The Ibis' for 1859, p. 394 (pl. xiii), Mr. D. G. Elliot describes *Platypsaris affinis*, with habitat in 'Mexico.' He remarks that "This species of *Platypsaris*, to which I have given the name of *affinis*, is closely allied to *Platypsaris aglaiae* (La Fresnaye), from which, however, it can easily be distinguished by its much smaller bill, and the general lighter color of its plumage, as well as the distinct black head, whereas there is little or no difference in the adult male of *P. aglaiae*, between the color of the head and back. The black of the head and neck [in *affinis*] is separated from the plumbeous of the back¹ by a narrow line of ash color; and the ears are tinged with purple. Beneath, this species is much lighter than *P. aglaiae*, being ashy white." The plate of *affinis* agrees with Mr. Elliot's description and at the same time agrees as closely as could be expected with Lafresnaye's description of *aglaiae* of which *affinis* is a pure synonym. I take it that Mr. Elliot must have

¹ Italics are mine.

used a wrongly labeled specimen for his comparison in place of referring to the original description.

In Vera Cruz there are two perfectly good subspecies of this bird which were recognized and their proper ranges indicated years ago by Prof. Sumichrast. He states: "I am led to believe that there are two varieties of this bird in the State of Vera Cruz. The one especially found in the hot and temperate regions, of stouter proportions, *and in the adult male at least, with darker plumage*,¹ etc. The other which I have met with several times in the alpine region, is appreciably inferior in size to the preceding, and with lighter tints in the adult male. It is possible that to the latter variety the name of *P. affinis* has been given." Our explorations and the specimens in the collections at hand show that the birds agreeing in every way with the original descriptions of Lafresnaye's *aglaia* and Elliot's *affinis* are the ordinary residents of the tierra templada of Vera Cruz from Mirador, Jalapa, and Jico north to the State of Tamaulipas. The hot, coast lowlands and foothills from Tlacotalpam in Vera Cruz, and Tuxtepec in eastern Oaxaca, south toward Guatemala are inhabited by a very much darker bird which is readily distinguishable.

This new form is dedicated to the memory of Prof. Francis Sumichrast to whose labors we owe so much of our knowledge of Mexican birds.

***Empidonax bairdi occidentalis*, new subspecies. PLUMA
FLYCATCHER.**

Type, No. 154599, U. S. Nat. Museum, Dept. Agric. coll., ♂, (?), Pluma, Oaxaca, Mexico, March 18, 1895. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 2566).

Distribution.—Heavy forests on Pacific slope of the Sierra Madre in Oaxaca.

Similar to *E. bairdi*, but dorsal surface brighter, clearer green; inside of bend of wings clear yellow in place of fulvous yellow; and under parts brighter or clearer in color.

This new race is a Pacific coast form of *bairdi*, which latter is an east . . . species, the type having come from Cordova, Vera Cruz.

¹ Italics are mine.

***Picolaptes compressus insignis*, new subspecies. BROADLY
STRIPED WOODHEWER.**

Type, No. 154647, U. S. Nat. Museum, Dept. Agric. coll., ♂, Otatitlan, Vera Cruz, Mexico, April 15, 1894. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 1938).

Distribution.—Lowlands of Vera Cruz.

Similar to *Picolaptes compressus* of Costa Rica, but distinguished by broader white shaft-lines on top of the head, neck and back, and their farther extension down the back. The white markings below are also broader than in ordinary Central American birds. The wings are of about equal length, but the tail of *insignis* is decidedly longer than in true *compressus*.

***Automolus pectoralis*, new species. OAXACA AUTOMOLUS.**

Type, No. 154672, U. S. Nat. Museum, Dept. Agric. coll., ♂, Pluma, Oaxaca, Mexico, March 18, 1895. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 2571).

Distribution.—Found by us only in the heavy forest of the temperate zone near Pluma, Oaxaca, where they were not numerous.

Description.—Crown, nape, and back to rump, dull tawny brown, a little lighter on forehead; rump rich rufous; tail a little darker shade of same; lores and line under eye with ear-coverts united in a uniformly brown area; breast, throat and sides of neck and extending forward above the ear-coverts to eye a nearly uniform dark rufous brown; chin a slightly paler shade of same; middle of belly dark fulvous in marked contrast to breast; flanks dark, tawny olive; under tail-coverts like breast; exposed parts of folded wings dull rufous.

The uniform color on the top of the head and back, with the generally lighter coloration of the entire bird distinguishes this from other known Mexican and Guatemalan species of this genus. Wing 94, tail 86, culmen 25, tarsus 27.

***Otocoris alpestris oaxacæ*, new subspecies. OAXACA HORNED
LARK.**

Type, No. 145003, U. S. Nat. Museum, Dept. of Agric. coll., ♂, San Mateo del Mar, Oaxaca, May 15, 1895. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 2700).

Distribution.—Valley of Oaxaca and coast plain immediately bordering the Oaxaca shore of the Gulf of Tehuantepec, from Salina Cruz to the border of Chiapas; ranging from sea level up to about 6000 feet.

Description.—The males of this bird are distinguishable from *chrysolæma* of the southern table-lands of Mexico by the greater extension of the vinaceous coloration on both upper and lower surfaces of the body. It is a lighter and brighter shade of this color than on *chrysolæma* and extends over the crown, nape, sides of neck, shoulders, rump, lesser and middle wing-coverts and sides of chest and flanks. In addition, the greater wing-coverts are more or less broadly bordered with the same. The exposed portion of the feathers of the folded wings as well as the back has the pale brown ground color suffused with a wash of this color, thus shading the entire upper surface behind the black area on the head. This general suffusion of vinaceous affords the readiest means of distinguishing this bird from *chrysolæma*. The yellow on the throat is paler in *oaxacæ* than in *chrysolæma*. The females differ from those of *chrysolæma* by being lighter brown above with a greater suffusion of pale vinaceous on the dorsal surface and along the flanks. The Oaxacan form averages a little smaller than *chrysolæma*.

Unfortunately my series of sixteen adult Oaxacan birds are all in summer plumage and more or less worn. A comparison of well plumaged birds with the fine series of *chrysolæma* would, no doubt, emphasize the differences noted. *Otocoris peregrina* of Bogotá is very similar in coloration to *chrysolæma* of the table-lands of central Mexico. Judging from the two specimens from Bogotá in the U. S. National Museum collection, it is a smaller form than either *oaxacæ* or *chrysolæma*. While on the highlands of Chiapas and Guatemala I looked carefully for Horned Larks but did not see a single individual.

O. alpestris oaxacæ was found breeding rather commonly in the Valley of Oaxaca and also along the salt flats near the sea about San Mateo del Mar. So far as known, its range is limited to parts of the State of Oaxaca. To the north its range meets that of *chrysolæma*. So far as our collections show, none of the several forms of *Otocoris* found in winter along the northern border of Mexico range south to the southern highlands about the Valley of Mexico and Plains of Puebla where true *chrysolæma* abounds.

***Calocitta formosa azurea*, new subspecies. BLUE-BACKED
CALOCITTA.**

Type, No. 144529, U. S. Nat. Museum, Dept. Agric. coll., ♂, Huehuetan, Chiapas, Mexico, February 24, 1896. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 3559).

Distribution.—The Pacific coast of Chiapas and thence southeasterly through Guatemala and other parts of Central America.

Description.—Back greenish blue with a grayish shade, the blue much lighter or brighter than in true *formosa*. A slightly more intense shade of this color extends over the exposed parts of the folded wings. The top of head, back and sides of neck are richer, brighter blue than the back. The crown feathers are white at base and usually have the distal half blue.

In some specimens a black area is interposed between the basal white and the blue of the tip, but not one of the twenty Central American specimens before me has the crown wholly black on the surface. Of twelve specimens of true *formosa*, six have the crown wholly black and six have the crown black and blue, with the black predominating in several. A black malar patch is present on most of the specimens of *formosa* but is exceptional in *azurea*. Among the latter it is common to find the forehead and basal half of the crest bluish white, which is exceptional in *formosa*. In *azurea* the chin, cheeks and neck down to the black pectoral crescent are white, washed with a light shade of blue that rests on the feathers like a delicate bloom varying in intensity as the bird is turned at different angles in the light. True *formosa* has the back dull grayish blue, the throat and adjoining part of the neck white. The crest of *azurea* appears to be larger than that of *formosa*. In size the two forms are about the same.

Eight specimens of this bird taken by us at Huehuetan, Chiapas, agree with numerous specimens in the National Museum from various Central American localities, in being bluer than those from the Pacific slope of Mexico between Tehuantepec and Colima. In the 'Biologia Centrali-Americana,' Aves, Vol. I, p. 509, the authors call attention to this difference but express the opinion that it is not a constant character. Having before me thirty-four specimens from various parts of Mexico and Central America, I find no difficulty in distinguishing the Central American bird from its Mexican relative.

***Cissolopha pulchra*, new species. ACAPULCO JAY.**

Type, No. 144794, U. S. Nat. Museum, Dept. Agric. coll., ♂, Acapulco, Guerrero, Mexico, January 13, 1895. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 2481).

Distribution.—Rather common along the coast near Acapulco.

Description.—Head, neck and entire lower part of body black; shoulders, back, rump (with upper tail-coverts) cyanine blue becoming

hyacinth blue in certain lights; exposed parts of folded wings blue with a greenish tinge; tail hyacinth blue; under tail-coverts and lower part of thighs dark Berlin blue; feet and legs brownish, bill black; tail longer and bill slenderer than in *sanblasiana*. The type measures: Wing 147, tail 157, bill 36, tarsus 42. Like *Cissolopha sanblasiana* the forehead has a recurved crest of black feathers.

Comparing the three Acapulco birds with a series of thirteen specimens of *sanblasiana* the shades of blue on the dorsal surfaces do not appear to approach one another, that of each species being well marked and distinctive.

This beautiful Jay although found at the best known seaport of western Mexico appears to have remained undescribed up to the present time.

***Agelaius phœniceus grandis*, new subspecies. TABLE-LAND
REDWING.**

Type, No. 144780, U. S. Nat. Museum, Dept. Agric. coll., ♀, from Atlixco, Puebla, Mexico, July 29, 1893. Collected by E. W. Nelson (Orig. No. 1435).

Distribution.—Southern table-lands of Mexico.

Description.—The coloration of the males does not differ from that of the same sex in the other forms. The female is represented in the collection by specimens in rather worn summer plumage. Compared with specimens of *phœniceus* from the United States in corresponding plumage, the females are darker, with the grayish or fulvous streaking on the lower surface limited mainly to the neck and breast, leaving the flanks plain. They are much darker in every way than the females of *longirostris*, and the restriction of the streaking below distinguishes them from the small Gulf coast bird (*richmondi*).

MEASUREMENTS OF *Agelaius phœniceus grandis*.

U. S. Nat. Mus. No.	Orig. No.	Sex.	Locality.	Date.	Collector.	Wing.	Tail.	Culmen.	Tarsus.
144773	1418	♂	Atlixco, Puebla.	July 27, 1893.	Nels. and Goldm.	142	98	24	32
144774	1424	♂	" "	" 28, "	" " "	144	101	23	32
144777	1430	♂	" "	" 29, "	" " "	159	99	24	32.5
144779	1434	♀	" "	" " "	" " "	114	78	20	29
144780	1435	♀	" "	" " "	" " "	117	78	20	30

The southern table-land region of Mexico is inhabited by a well marked form of Redwing having a range nearly coincident with that of typical *A. gubernator*. Like *gubernator* of this region it is the largest form of the species and has a stouter or heavier bill than the others.

***Agelaius phœniceus richmondi*, new subspecies. RICHMOND'S
REDWING.**

Type, No. 144766, U. S. Nat. Museum, Dept. Agric. coll., ♀, from Tlacotalpam, Vera Cruz, Mexico, April 21, 1894. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 1959).

Distribution.—The Gulf coast lowlands of Mexico from near Tampico, south through Yucatan to Nicaragua.

Description.—The males of *richmondi* are colored as in other forms of this species. The females are but slightly marked with lighter on the back. Below on the neck and breast, the fulvous streaks formed by the edgings of the feathers are so broad that they form the main color of that area, the dark shaft markings appearing as narrow streaks. They are much darker than the females of *longirostris* or *bryanti* in general coloration. Both sexes differ from their neighboring forms in small size and in having comparatively long, slender bills.

The National Museum series contains specimens of this form from various localities in Yucatan and on the east coast of Nicaragua. To the north they grade toward the larger northern birds.

MEASUREMENTS OF SEVEN SPECIMENS OF *Agelaius phœniceus richmondi*.

U. S. Nat. Mus. No.	Orig No.	Sex.	Locality.	Date.	Collector.	Wing.	Tail.	Culmen.	Tarsus.
144763	1963	♂	Tlacotalpam, Vera Cruz.	Apr. 22, 1894.	Nels. and Goldm.	106	77	24	27
144765	1957	♂	Tlacotalpam, Vera Cruz.	" 21, "	" " "	111	87	27	28.5
144764	1964	♂	Tlacotalpam, Vera Cruz.	" 22, "	" " "	109	82	26	29
129784	—	♂	Yucatan.	?	F. Gaumer.	115	83	24	27
126272	3680	♂	San Carlos, Nicaragua.	Feb. 25, 1892.	C. W. Richmond.	105	77	25	28.5
144767	1958	♀	Tlacotalpam. Vera Cruz.	Apr. 21, 1894.	Nels. and Goldm.	91	66	21	24
144766	1959	♀	Tlacotalpam. Vera Cruz.	" " "	" " "	92	67	21	26

I take pleasure in dedicating this form to Mr. Chas. W. Richmond, Assistant Curator of Birds in the National Museum, who obtained specimens of it in Nicaragua.

Agelaius gubernator californicus, new subspecies. CALIFORNIA BICOLORED BLACKBIRD.

Type, No. 74278, U. S. Nat. Museum, ♀ ad., Stockton, California, April 17, 1878. Collected by L. Belding.

Distribution.—Coast region and valleys of California and Oregon north to the Columbia River.

Description of type, in breeding plumage.—The crown and back of neck and shoulders streaked with the grayish and buffy edgings to feathers; primaries, secondaries, tertiaries and wing-coverts edged with whitish; chin and throat fulvous with black shaft-streaks on most of feathers; entire breast and sides of neck streaked coarsely with the fulvous whitish borders to feathers; general color of rest of plumage dull blackish. The males of the two forms agree in coloration. The type measures: Wing 108, tail 75, culmen 19, tarsus 28.

In comparing specimens of this species from the table-lands of Mexico with those from California certain differences are found which warrant the naming of a geographical race. As *A. gubernator* was described from the table-lands of Mexico it follows that the Californian bird is the new one.

The breeding females of typical *gubernator* from the plains of Puebla lack nearly all of the light streaking on the entire upper surface, including the wings, and the light streaks are less marked on the lower surface.

Among other differences from true *gubernator* are the notably smaller size and slenderer bills of the northern birds, as shown by the accompanying tables of measurements. The specimens from Atlixco and Patzcuaro are in worn or imperfect plumage so that the dimensions of their wings and tails fall below the normal. The Californian specimens measured were all in good plumage.

True *gubernator* ranges over all of the southern end of the Mexican table-land north of Oaxaca, and specimens have been examined from Lagos in Jalisco, Guanajuato, Lake Patzcuaro in Michoacan, the Valley of Mexico, the Plains of Puebla, and Orizaba in Vera Cruz. Between the present ranges of these two

forms there is now a broad area several hundred miles across in which neither is known to occur. Two males in the National Museum collection from the Pacific coast of Mexico (one from the State of Colima and the other from Mazatlan) are smaller than table-land specimens in length of wing and tail, and their bills are slenderer, thus approaching the California bird.

MEASUREMENTS OF *Agelaius gubernator californicus* FROM CALIFORNIA.

U. S. Nat. Mus. No.	Orig. No.	Sex.	Locality.	Date.	Collector.	Wing.	Tail.	Culmen.	Tarsus.
139543		♂	Pescadero.	Feb. 21, 1894.	J. E. McLellan.	125	84	20	29
142098		♂	Carbondale.	Mar. 28, "	C. P. Streater.	126	94	22	30
152620		♂	Cahto.	May 4, 1889.	R. C. McGregor.	129	90	24.5	31
152625		♂	"	" 21, "	" "	127	86	23	31
83832		♂	Nicasio.	" 26, 1877.	C. A. Allen.	128	89	22	30

MEASUREMENTS OF *Agelaius gubernator gubernator* FROM THE MEXICAN
TABLE-LAND.

U. S. Nat. Mus. No.	Orig. No.	Sex.	Locality.	Date.	Collector.	Wing.	Tail.	Culmen.	Tarsus.
109065		♂	Orizaba.	?	Botteri.	142	97	24	32
71216		♂	Valley of Mexico.	?	?	147	100	23	32
38186		♂	Orizaba.	?	Botteri.	137	91	22.5	32
144772	417	♂	Patzcuaro.	Oct. 17, 1892.	E. W. Nelson.	142	98	22	31
144771	1423	♂	Atlixco.	July 28, 1893.	"	134	97	23	32.5
144784	1425	♀	"	" " "	"	116	79	19	29
144781	1433	♀	"	" 29, "	"	114	82	20	28
147045		♀	Mexico.	?	Boucard.	119	79	19	29

***Ammodramus savannarum obscurus*, new subspecies.**

MINATITLAN SPARROW.

Type, No. 143801, U. S. Nat. Museum, Dept. Agric. coll., ♂, Minatitlan, Vera Cruz, April 21, 1896. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 3709).

Distribution. — Grassy savannas of the hot lowlands of Vera Cruz, near Minatitlan, and probably elsewhere in suitable situations along the tropical Gulf coast belt to the south.

Description of type. — The dorsal surface is almost wholly black or blackish brown, including the top of the head and the upper tail-coverts. This generally dark coloration is broken by a narrow, pale buffy median stripe on the head and by a small amount of ashy brown, fulvous and dark chestnut edgings to the feathers of the neck, back and rump. The feathers of the top and sides of the neck on birds of the eastern United States are usually dull rufous and ashy, forming a distinctly lighter area than the crown or back, but in the Minatitlan birds this area differs but little in general shade from the color on the rest of the dorsal surface. These neck feathers have black centres with a very slight edging of dark rufous followed by dingy grayish. The scapulars, lower back, and rump feathers are tipped with small spots of dark chestnut. The lower parts, except abdomen, are dark, dingy buffy, lighter on the chin and throat, and darker or more brownish on the flanks; the abdomen is dingy white. The wings and tail are blackish brown edged with lighter shades of brown and gray. The females from this locality, while averaging darker than ordinary birds from the eastern United States, are scarcely distinguishable when compared with very dark specimens from that region.

The specimens from the type locality are the only ones I have seen of this form, but it undoubtedly occurs in suitable situations both to the north and south of that place and probably have nearly the same distribution as *Agelaius p. richmondi*.

While at Minatitlan the last of April, 1896, we found these Sparrows in full song and preparing to nest on the open grassy savannas, often of considerable extent, that are found scattered over the plains of that district. They were rather common, with habits and notes similar to those of their relative of the eastern United States. Their size is also about the same.

***Junco fulvescens*, new species. CHIAPAS JUNCO.**

Type, No. 143906, U. S. Nat. Museum, Dept. Agric. coll., ♂, San Cristobal, Chiapas, Mexico. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 3079).

Distribution.—Highlands of central Chiapas, Mexico.

Description of type.—Top and sides of head and neck dull ashy gray; back dull rufous with exposed borders of secondaries and tertiaries a brighter shade of same; rump and upper tail-coverts olive brown; chin, throat, middle of breast and abdomen dull white; sides of breast, flanks and under tail-coverts dull, olive-shaded buffy; over two-thirds of outer web and about one-half of inner web of outer tail-feather white; about one-third of inner web of second tail-feather white; general color of undescribed parts of wings and tail light clove brown; lores blackish. Measurements: Wing 77, tail 67, culmen 15, tarsus 23.

The females are smaller and rather duller colored. In winter dress the rufous of the back becomes dark, dull chestnut. In the large size of the beak as well as in other proportions these birds are similar to *alticola*, but the specimens before me show no intergradation in coloration between the two birds.

An examination of a large series of Mexican and Guatemalan Juncos, including specimens of *phaenotus* and *alticola* from the vicinity of the type localities, reveals the interesting fact that a hitherto undescribed species inhabits the highlands of central Chiapas. Sixteen specimens of this bird are now before me. Its range lies adjacent to that of *alticola* but is wholly cut off from that of *phaenotus* by the low country at the Isthmus of Tehuantepec. Nearly all of the adult specimens of *fulvescens* at hand are in worn summer plumage or just entering the fall molt. The type, however, is in fairly well preserved summer plumage.

***Peucaea ruficeps fusca*, new subspecies, BROWN SPARROW.**

Type, No. 135909, U. S. Nat. Museum, Dept. Agric. coll., ♀, from Etzatlan, Jalisco, Mexico, June 18, 1892. Collected by E. W. Nelson (Orig. No. 185).

Distribution.—The southwestern part of the Mexican table-land region, and bordering mountains, in the States of Michoacan and Jalisco. Its range to the north merges into that of *scotti*, and to the east and south-east into that of *boucardi*.

Description.—In the present race the most obvious character lies in the intensity of the browns on the entire dorsal surface and the scantiness of ashy borders to the feathers, thus giving a deep, warm brown color to this area. The dark rufous of the pileum shades gradually into the vandyke brown of the back. The ashy borders of the dorsal feathers, so far

as can be judged by the specimens before me, are narrower and darker than usual in the other forms, thus producing the more uniformly brown appearance. Six specimens before me give the following dimensions.

U. S. Nat. Mus. No.	Orig. No.	Sex.	Locality.	Date.	Collector.	Wing.	Tail.	Culmen.	Tarsus
135909	185	♀	Etzatlán, Jalisco.	June 18, 1892.	E. W. Nelson.	63	58	12	20.5
135911	296	♀	Querendaro, Mich.	Aug. 6, "	"	66	64	14	22
135914	309	♀	Querendaro, Mich.	" 9, "	"	64	61	13	22
135910	192	♂	Etzatlán, Jalisco.	June 23, "	"	63	57.5	13	21.5
135912	306	♂	Querendaro, Mich.	Aug. 8, "	"	67	63	13	22
135913	307	♂	Querendaro, Mich.	" " "	"	67	65	14	22

***Peucaea ruficeps australis*, new subspecies. SOUTHERN
SPARROW.**

Type, No. 136131, U. S. Nat. Museum, Dept. Agric. coll., ♀, City of Oaxaca, Oaxaca, June 15, 1894. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 2104).

Distribution.—That outlying part of the Mexican table-lands occupied by the Valley of Oaxaca, and adjacent mountains up to 6000 or 7000 feet. On the north its range merges into that of *boucardi*, which is common about the Valley of Mexico and on the plains of Puebla.

Description.—Similar to *P. boucardi*, from which it differs in the light rusty-red shade of the rufous on the dorsal surface, the small amount of ashy bordering the feathers of the back, and the more fulvous lower surface.

In general coloration it is much nearer *scotti* of Chihuahua and southern Arizona, but the rufous of *australis* is of a paler or more rusty shade, and it is smaller with a heavier bill. The present form is at once distinguishable from *fusca* (of this paper) by the very much lighter shade of the red or rusty color on the dorsal surface.

The following are the measurements of two specimens of this form.

U. S. Nat. Mus. No.	Orig. No.	Sex.	Locality.	Date.	Collector.	Wing.	Tail.	Culmen.	Tarsus.
136131	2104	♀	City of Oaxaca.	June 15, 1894.	Ncls. and Goldm.	61	61	13	21
143925	2601	♀	Totolapa, Oaxaca.	Apr. 20, 1895.	" " "	62	64	14	21

Cardinalis cardinalis littoralis, new subspecies. COAST
CARDINAL.

Type, No. 144301, U. S. Nat. Museum, Dept. Agric. coll., ♂, from Coat-zacoalcos, Vera Cruz, Mexico, April 14, 1896. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 3690).

Distribution.—The moist, hot, coast lowlands of Vera Cruz, near Coat-zacoalcos and Minatitlan, and undoubtedly ranging into the adjacent parts of Tabasco.

Description.—The males can be distinguished at once from the other Mexican Cardinals by the intensity of their coloration. With the exception of the black throat patch the entire lower surface, the sides and back of neck and pileum are of a rich poppy red with a wash of carmine. The back including dorsal surface of wings and tail, is intensely rich, dusky red. The capistrum is intensely black and a narrow black band connects the black of the lores across the forehead.

The female is similar in coloration to *yucatanicus*, but the colors are brighter. The black of the capistrum, however, is duller and more of a smoky or dingy shade in the only female seen of the new race.

They are larger and heavier birds than *yucatanicus* and approach more closely in coloration to *saturatus* from Cozumel Island than to any other known form, but are much more intensely colored even than the latter. Specimens of Cardinals obtained at Cate-maco and Otatitlan in Vera Cruz, and near Tuxtepec in eastern Oaxaca, are from a district lying between the type locality of *littoralis* and the range of *coccineus*, of the adjacent country to the north, and show a gradation between the two forms.

At Coatzacoalcos they were rather common in the brush-grown sand hills skirting the coast, during April and May, 1896.

Below are the measurements of five specimens of this form :

U. S. Nat. Mus. No.	Orig. No.	Sex.	Locality.	Date.	Collector.	Wing.	Tail.	Culmen.	Tarsus.
144301	3690	♂	Coatzacoalcos.	Apr. 14, 1896.	Nels. and Gold.	92	105	20	26
144302	3682	♂	"	" 13, "	" " "	92	103	19	26.5
144303	3693	♂	"	" 15, "	" " "	85	95	19	25
144305	3714	♂	Minatitlan.	" 22, "	" " "	90	99	19	26
144304	3703	♀	"	" 20, "	" " "	88	98	20	25

Chlorospingus atriceps, new species, BLACK-CROWNED
CHLOROSPINGUS.

Type, No. 143613, U. S. Nat. Museum, Dept. Agric. coll., ♂, Pinabete, Chiapas, Mexico, February 9, 1896. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 3446).

Distribution.—Heavily wooded mountain slopes of Chiapas, near the Guatemalan border, on the Pacific slope.

Description.—Feathers of pileum and ear-coverts very dark grayish with black tips, giving the surface a blackish shade slightly clouded with grayish; lores very dark grayish; a black band from base of under mandible back to ear-coverts, along lower border of eye; a short, white, post-ocular streak ends above the ear-coverts; sides of neck very dark ashy brown; remainder of dorsal surface, including exposed borders of closed tail and wings, dark oil green; throat dingy white spotted with numerous black tips to feathers; pectoral band light olive green; flanks and under tail-coverts a darker shade of same, nearly equalling color of back; abdomen dingy white; under wing-coverts white. Dimensions: Wing 75, tail 63, culmen 12, tarsus 22.5.

This species is very similar in general appearance to *C. pileatus* of Costa Rica but may be distinguished at once by the absence of the white superciliary line.

Phœnicothraupis rubicoides affinis, new subspecies. OAXACA
TANAGER.

Type, No. 143571, U. S. Nat. Museum, Dept. Agric. coll., ♂, Pinotepa, Oaxaca, Mexico, February 21, 1895. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 2538).

Distribution.—Foothills of the coast range on the Pacific slope of Oaxaca, and probably including the same belt in the State of Guerrero.

The males of this form differ from specimens of typical *rubicoides* taken on the east coast of Mexico and in Guatemala, by having the red of the entire body of a lighter or less intense shade, and in the red of the lower parts being more uniform, the contrast between the color of the throat and breast and that of the abdomen and rest of lower parts not being so marked. The female has the crest of a lighter yellow than in birds from the Gulf coast, and the back is a lighter, brighter green. The lower surface is lighter and more inclined to buffy and the throat patch is less marked, thus agreeing with the male in the uniformity of the color on the lower surface.

Birds from the Isthmus of Tehuantepec are intermediate between those from Vera Cruz and those from Pinotepa. The lighter colors of birds from the Pacific coast district of Oaxaca is what might be expected from the fact that the climate is much more arid there than on the Gulf coast where the more intensely colored, typical form is found.

Dendroica goldmani, new species. GOLDMAN'S WARBLER.

Type, No. 143169, U. S. Nat. Museum, Dept. Agric. coll., ♂, Hacienda Chancol, Guatemala, January 4, 1896. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 3341).

Distribution.—High, wooded slopes of the main Cordillera in western Guatemala.

Description of male.—Chin whitish; a conspicuous white spot just under ear-coverts and bordering yellow throat patch; yellow crown patch bordered behind by a well marked white nuchal spot about one half as large as crown patch; forehead and entire sides and top of head and neck, outside of yellow and white areas, jet black; interscapular region black with gray edges to feathers; rump bluish, blackish gray; upper tail-coverts black; white borders of wing-coverts forming a broad white patch as in

nigrifrons; wings and tail blackish, edged with dull grayish; breast black, flanks and abdomen, back of yellow pectoral spots, white mixed with blackish; under tail-coverts white.

The type is the only specimen obtained of this beautiful bird. It was shot in an old potato field in the forest a little below 10,000 feet. Others were seen and the bird did not appear to be uncommon, but not appreciating its distinctness from *auduboni* at the time, I failed to secure additional specimens.

Its nearest relative is *Dendroica nigrifrons* Brewster, from which, however, it presents various striking differences. It has yellow markings of the same shade and distribution as in *nigrifrons* and *auduboni*.

This species is dedicated to my assistant, Mr. E. A. Goldman, whose services have aided so largely in the formation of the collection upon which the present paper is based.

Basileuterus flavigaster, new species. YELLOW-BELLIED
WARBLER.

Type, No. 143265, U. S. Nat. Museum, Dept. Agric. coll., ♂, Yajalon, Chiapas, Mexico, October 17, 1895. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 3191).

Distribution.—From Yajalon, Chiapas, to San Andres Tuxtla, Vera Cruz.

Description of type.—Crown rufous, darker than in *rufifrons*, with a faintly marked median line of lighter strongest on the forehead; superciliary stripe white; a white spot just back of and below the ear-coverts on the side of the neck, forming the termination of a grizzled whitish band which extends back along the side of the head, from the chin, and reaches up nearly to the lower eyelid; lores, a narrow line around each side of the eye, and a postocular spot black; cervical collar on the sides and back of the neck, just back of the rufous crown, olive-shaded, ashy-gray; remainder of upper parts including exposed borders of the wing and tail-feathers dark olive green; throat, breast and middle of belly bright yellow, but less intense and slightly washed with buffy on the latter; the sides of the breast and flanks olive green, shaded with buffy posteriorly; the under tail-coverts are buffy. Its size is about the same as *rufifrons*.

This species has the head markings much as in *rufifrons*, with the yellow ventral surface of *delatirii*. Specimens from San Andres Tuxtla, Vera Cruz, are not quite so richly yellow below as the type.

***Heleodytes alticolus*, new species. MOUNTAIN WREN.**

Type, No. 142855, U. S. Nat. Museum, Dept. Agric. coll., ♂, Huitzilac, Morelos, Mexico, December 28, 1892. Collected by E. W. Nelson (Orig. No. 608).

Distribution.—The Pacific slope of the Sierra Madre in the States of Morelos and Mexico from 6000 to 9000 feet.

Description of type.—Crown and forehead grayish brown; back and sides of neck streaked with white and blackish brown; back and rump irregularly barred with white and blackish brown, the feathers being bordered with dull ashy gray slightly shaded with fulvous; two middle tail-feathers with inner webs uniform dark ashy gray; throat and breast white with large, rounded, blackish brown spots; flanks, abdomen and under tail-coverts barred with dingy whitish and blackish brown. Dimensions: Wing 97, tail 89, bill 25, tarsus 27.5.

The following dimensions are of an adult male *megalopterus* from near Jalapa, in Vera Cruz. Wing 90, tail 81, bill 21, tarsus 27.

Mr. Ridgway has had the opportunity of examining Lafresnaye's types in this group and has determined that true *Campylorhynchus pallescens* of that author is a South American species, while the *Campylorhynchus pallescens* of Baird's Review of Am. Birds, I, p. 101, and of the Biologia Cent.-Am., Aves, I, p. 69 is really *Campylorhynchus megalopterus* Lafr., which inhabits the mountain slopes of Vera Cruz.

This clears up the ground in such a way as to leave it quite certain that the specimens of *Heleodytes* obtained by me in the heavy oak forest on the mountain slopes of northern Morelos represent an undescribed species. The specimens from the type locality are the only ones of this bird at hand. It may be distinguished at once from *megalopterus* by its larger size and by the greater clearness of its colors, *alticolus* showing but slight traces of the pale wash of dingy fulvous that obscures the colors of the other.

Alticolus is closely related to *megalopterus*, and I should be inclined to regard them as geographical races of the same species were it not for two considerations: First, my specimens show no signs of intergradation, and second, the ranges of the two forms are isolated from one another by a broad belt of unsuitable country, where neither occurs. Under these circumstances I have no alternative but to treat the two as species until data are at hand to prove them otherwise.

Heleodytes occidentalis, new species. COLIMA WREN.

Type, No. 142863, U. S. Nat. Museum, Dept. Agric. coll., ♂, Sierra Nevada de Colima of Jalisco, Mexico. April 20, 1892. Collected by E. W. Nelson (Orig. No. 102).

Distribution.—Oak forest at the base of the Sierra Nevada de Colima on the border between the states of Colima and Jalisco.

Description.—Compared with typical examples of its nearest relative, *H. jocosus*, this species may be recognized by its reddish brown crown and the brighter markings of the dorsal surface, and also by the obsolescence of the last dark bar on the outer end of the outer tail-feather. The postocular stripe is reddish brown instead of blackish as in *jocosus*, and the flanks and under tail-coverts are marked and shaded with bright fulvous. The ventral surface is less heavily spotted with black, and its bill is proportionately shorter and stouter. The two species are of about the same size.

Heleodytes humilis rufus, new subspecies. GUERRERO
WREN.

Type, No. 142820, U. S. Nat. Museum, Dept. Agric. coll., ♀, Aguahuitzotla, Guerrero, Mexico, December 28, 1895. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 2456).

Distribution.—Interior of Guerrero along lower slope of the Sierra Madre near Chilpancingo.

Description.—Feathers of forehead and crown black, with borders of dark rufous becoming richer and redder on nape, back and sides of neck. Thence the entire back, including rump and upper tail-coverts, is overlaid with rusty brown a little lighter than the nape. Light markings on exposed part of wing are same shade as back. Chin, throat and ear-coverts white; breast and middle of belly white, washed with pale fulvous; entire flanks and under tail-coverts dull fulvous.

H. humilis rufus differs from *humilis* of the coast districts of western Mexico, of which I have a good series at hand, in the greater intensity of the rufous on the dorsal surface, and in the greatly added intensity of the fulvous wash below.

The differentiation of this form agrees with certain topographic and climatic differences between the localities inhabited by it and those inhabited by the typical one.

***Heleodytes capistratus nigricaudatus*, new subspecies.**

BLACK-TAILED WREN.

Type, No. 142806, U. S. Nat. Museum, Dept. Agric. coll., ♂, San Benito, Chiapas, Mexico, March 11, 1896. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 3648).

Distribution.—Pacific coast of Chiapas, near Tapachula, and thence into adjacent parts of Guatemala.

Heleodytes capistratus nigricaudatus is very much like *H. capistratus castaneus* Ridgw. in the uniform chestnut coloration of the back, and, indeed, in other respects except the color of the tail. In the present form the two central rectrices are black, or blackish brown, with one and sometimes two subterminal white or whitish bars, the feathers being tipped with a narrow grayish or blackish brown border and lacking the several brownish bars which are conspicuously present in birds from Costa Rica, Nicaragua and Guatemala. In the eleven specimens of *nigricaudatus* before me this character is so constant that, despite the close resemblance of this form to *castaneus* in other particulars I feel justified in recognizing it as a geographical race occupying the extreme north-western border of the range of the species along the Pacific coast.

***Salpinctes obsoletus neglectus*, new subspecies. CHANCOL**

ROCK WREN.

Type, No. 142866, U. S. Nat. Museum, Dept. Agric. coll., ♂, Hacienda Chancol, Guatemala, January 3, 1896. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 3330).

Distribution.—Highlands of western Guatemala and probably of central Chiapas.

Description.—*Salpinctes o. neglectus* may be distinguished from the Rock Wrens of the western United States and the highlands of northern and central Mexico by its clearer or more ashy gray color, the intensity of the black shaft-lines and white tips of the feathers on the dorsal surface, the black and white markings being quite clearly and sharply defined. The ear-coverts are dark brown, the cheeks are white with blackish brown mottling, and the sides of the neck are brown, variegated with white. The rump is a little deeper fulvous than in *obsoletus* from the Mexican highlands. The tail is also darker than in that bird. The throat is whitish, the breast and sides are mottled with distinct black spots, and the flanks are dull fulvous. Size about the same as typical *obsoletus*.

The type of this form came from the high, cold table-lands about Chancol at an elevation of ten thousand feet. There they were common in the open pine forest. In the lower and warmer district about Nenton, Guatemala, with typical examples of *neglectus*, we obtained two specimens that, while agreeing with the Chancol bird more than with *obsoletus*, show a gradation toward the latter, and this probably continues through Chiapas. Specimens from the plain about Quezaltenango and the adjacent Volcano of Santa Maria are like the Chancol specimens.

Although I have no specimens of *S. guttatus* at hand, the description of that species shows it to be distinct from *neglectus*.

Hylorchilus,¹ new genus.

Type, Catherpes sumichrasti LAWR. Proc. Acad. Nat. Sci. Phila., 1871, p. 233.

The specimen used in describing the characters of this genus is No. 142878, U. S. Nat. Museum, Dept. Agric. coll., ♂ (?), Motzorongo, Vera Cruz, Mexico, March 5, 1894. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 1806).

Generic Characters.—Like *Microcerculus*, this genus is characterized by the plainness of its dark brown plumage, the tail and wings being unmarked, as is most of the body. The secondaries are almost of the same length as the primaries, and the tail is short and spiky in form, being made up of soft slender feathers narrowed gradually at the tip. The tail is so short that it does not reach to the end of the outstretched feet in the dried skin. The body is short and stout, with strong legs and feet as in *Microcerculus*. The bill, however, is more as in *Catherpes*, being long, unnotched at the tip and with similarly narrow, oval, slit-like nares. The bill is heavier and its curve is decidedly less than in *Catherpes mexicanus*, the nares are slightly inclined toward the front instead of being parallel to the gape as in *Catherpes*, and the membrane forming the upper border of the orifice is a little curved and inflated along its edge.

Catherpes sumichrasti was described from a single imperfect specimen taken at Mata Bejuco in Vera Cruz, Mexico. Owing to the absence of the tail in the only known specimen, it has been referred provisionally to the genus *Catherpes* by all subsequent authors. Fortunately we secured two perfect specimens at

¹ ὄλη, forest, and ὄρχλος, wren, in reference to the habits of the type species.

Motzorongo, in Vera Cruz, in the same region from which came the original specimen, and I am now in position to properly locate the species generically. It forms a distinct type of Wren of generic value and having *Microcerculus* as its nearest ally. Some of its characters indicate a close relationship to *Catherpes* as well, so that its position appears to be that of an intermediate group between those two genera.

The measurements of the two specimens in the collection are given below and show the proportions of the parts. With only the single species to deal with, it is difficult to decide between specific and generic characters, but the distinctive points named will serve until modified by the discovery of other species.

MEASUREMENTS OF *Hylorchilus sumichrasti* (Lawr.).

Sex.	Locality.	Date.	Collector.	Wing.	Tail.	Bill.	Tarsus.
♂ (?)	Motzorongo, Vera Cruz.	Mar. 5, 1894.	Nels. and Goldm.	68	42	32	31
♀	" "	" " "	" " "	65	39	29	27.5

These birds inhabit the gloomiest recesses of the heavy tropical forest, keeping about jutting rocks on steep hillsides, where the forest is so dense that the undergrowth is sparse and the sun scarcely penetrates to the ground. We found them only at an elevation of from about 800 to 1200 feet above sea level on the base of the Cordillera fronting the Gulf of Mexico. They appear to be very local in their distribution, for we searched for them in similar situations elsewhere in eastern Mexico without success.

***Hemiura pacifica*, new species. PACIFIC WREN.**

Type, No. 142935, U. S. Nat. Museum, Dept. Agric. coll., ♂, Manzanillo, Colima, Mexico, February 8, 1896. Collected by E. W. Nelson (Orig. No. 46).

Distribution.—The type and only known specimen of this species was taken at Manzanillo on the west coast of Mexico.

Description.—Compared with *H. leucogastra* and *H. leucogastra brachyura* from the east coast of Mexico this species may be distinguished

date
wrong?
same
as
Pineville,
Chiriqui

=1892

by its more rufous dorsal surface, which is entirely of a warm rufous brown. The superciliary line and the rest of the sides of the head are marked as in the other species. The sides of the neck and breast are ashy, and the flanks and under tail-coverts are fulvous brown, brighter than in the other forms. The rest of the lower parts are white. The wings and tail are longer, the bill is about the same.

A specimen of *Hemiura* taken by us at Acapulco is indistinguishable from Yucatan specimens, representing *brachyura*, so the present species is probably not widely spread along the west coast of Mexico.

***Henicorhina mexicana*, new species. MEXICAN WOOD
WREN.**

Type, No. 143007, U. S. Nat. Museum, Dept. Agric. coll., ♂, Jico, Vera Cruz, Mexico, June 24, 1893. Collected by E. W. Nelson (Orig. No. 1272).

Distribution. — Both coasts of Mexico north of the Isthmus of Tehuantepec, in the heavy forests of the mountain slopes of the 'tierra templada.' There are specimens in the collection from the Sierra Madre near Chilpancingo, Guerrero; Mt. Zempoaltepec, Oaxaca, and Jico in Vera Cruz.

Description of type. — Entire top of head, neck and back with upper tail-coverts rusty rufous, a little duller on the head but showing no marked contrast between that and back; exposed parts of folded wings and tail similar to back and crossed by fine blackish bars; lores dark grayish; superciliary stripe white with fine black edgings to feathers; postocular stripe blackish; feathers of ear-coverts and sides of throat and neck with white shaft-lines and black borders, producing a bright black and white striped pattern; chin and throat whitish; breast dark ashy; flanks, abdomen and under tail-coverts dark rufous.

The ashy-breasted Wrens of this genus, in Mexico and Guatemala, have been constantly referred to certain South American species. In Baird's 'Review of American Birds' he gives *Heterorhina griseicollis* as questionably from Guatemala to Mexico. Salvin and Godman in the 'Biologia Centrali-Americana,' Vol. I, p. 80, unite all the Mexican and Central American birds of this style under *Henicorhina leucophrys* Toch. Having a considerable series of these birds before me from numerous Mexican localities, in addition to the U. S. National Museum series from Central America, I find no difficulty in recognizing three distinct forms

north of the Isthmus of Panama. Unfortunately there is no series of specimens at hand to determine the relationship between the birds of Costa Rica and those of South America. Leaving birds from the last two regions out of the question, we have in Guatemala and Chiapas a bird similar in general style and marking to the Costa Rican ones, but readily separable from them, which I recognize as a geographical race of South American *leucophrys*. These birds are found in suitable places from Guatemala to the Isthmus of Tehuantepec. The low country of the Isthmus forms an abrupt cut-off, and beyond that, when the southern end of the Sierra Madre is reached, we find a very distinct bird which occurs along both coasts and which I have recognized as specifically distinct from the others.

The series of eighteen specimens at hand from the two sides of the Isthmus of Tehuantepec, Chiapas and Oaxaca, show no signs of approach to one another, and the young birds in their first plumages are also readily distinguishable.

***Henicorhina leucophrys capitalis*, new subspecies. GRAY-
CROWNED WOOD WREN,**

Type, No. 143018, U. S. Nat. Museum, Dept. Agric. coll., ♂, Pinabete, Chiapas, Mexico, February 8, 1896. Collected by E. W. Nelson and E. A. Goldman (Orig. No. 3439).

Distribution.—Heavily wooded mountain slopes in the 'tierra templada' on both sides of Chiapas and thence into adjacent parts of Guatemala.

Description.—A broad band of dark gray extends from the base of the upper mandible back along the top of the head to the fore part of the shoulder and is bordered on each side by a narrower dark line which is black or blackish. The sides of the head and neck as well as the lower parts are very similar to the same parts in *mexicana*. The back and rump are dark rufous in strong contrast to the color on the top of the head and neck, the line of demarcation being very well defined.

Specimens from the Volcan de Fuego, in Guatemala, belong to this race although inclining somewhat toward the birds of Costa Rica. The latter, however, are easily distinguished from *capitalis* by their uniformly dark color on the top of the head and neck, and probably represent another race separable from true *leucophrys*.

Catharus occidentalis fulvescens, new subspecies. TABLE-
LAND THRUSH.

Type, No. 142436, U. S. Nat. Museum, Dept. Agric. coll., ♂, Amecameca, Mexico, February 1, 1893. Collected by E. W. Nelson (Orig. No. 764).

Distribution.—The heavy oak forests of the mountain slopes on the southern end of the Mexican table-lands. Our collection contains specimens from Amecameca, Huitzilac, Ajusco, Volcano of Toluca, El Chico, the Volcano of Orizaba and the Sierra Madre near Chilpancingo, Guerrero.

Catharus occidentalis fulvescens is a form of the table-land mountains and, contrasted with typical *occidentalis*, it is lighter rufous on the crown and the color of the entire dorsal surface is a lighter and more fulvous brown and the ventral surface is much lighter colored. The two forms agree in size. The difference in coloration is quite in line with what would be expected, since the slopes of Mt. Zempoaltepec, whence came the type of *occidentalis*, are very damp and subject to long continued fogs and misty storms. On the other hand the lighter and brighter colored *fulvescens* lives in the drier, clearer climate of the table-lands.

Six birds obtained by us near the type locality agree in being very dark, approaching *C. frantzii* of Central America.

Merula tamaulipensis, new species. TAMAULIPAS ROBIN.

Type, No. 142510, U. S. Nat. Museum, Dept. Agric. coll., ♀, Ciudad, Victoria, Tamaulipas, Mexico, March 27, 1891. Collected by Wm. Lloyd.

Distribution.—The only known specimen was taken near the capital of the State of Tamaulipas.

Description.—Similar to *M. grayi* in size and general characters, but spurious primary broader and more bluntly rounded; entire dorsal surface including top of head and exposed surfaces of folded wings and tail plain, dull, buffy olivaceous, nearly uniform and lacking the deeper buff that gives a warmer tone to the same surface of *grayi*; sides of head and neck like the back; chin and throat whitish, streaked with dark shaft-lines and very faintly washed with pale brownish. This light, streaked, throat area is larger and more marked than in *grayi*. The sides of the breast are olive brown shading into a light pectoral band of the same color which shades insensibly into the very pale buffy whitish of the abdomen. The flanks are more intensely buffy than the abdomen; the

lower tail-coverts are like the belly. The paler, duller color of the lower surface serves to distinguish this species at once from the more richly colored *grayi*.

It is closely related to *M. grayi* which it probably replaces in the region where it occurs. This supposition is based upon the fact that among the considerable series of *grayi* before me from various parts of Mexico not one is from the State of Tamaulipas, while the present species is unrepresented among the considerable series of that bird from the neighboring State of Vera Cruz.

DESCRIPTION OF A NEW SUBSPECIES OF *DENDROICA*.

BY HARRY C. OBERHOLSER.

A RECENT careful examination of the series of Yellow Warblers contained in the United States National Museum has revealed the existence of a well-defined geographical race of *Dendroica aestiva*, which has hitherto been recognized only in synonymy. The subspecies in question should, therefore, now be known as

Dendroica aestiva rubiginosa (Pallas), subsp. restit.

ALASKAN YELLOW WARBLER.

Motacilla rubiginosa PALLAS, Zoogr. Rosso-Asiat. I, (1811?) 1831, 496.¹

CHARS SUBSP. — *D. aestivae* morcomo sat similis, sed corpore supra olivaceo-viridi obscuriore fere unicolore, vertice et uropygio vix flavescenti-

¹ All other of the numerous synonyms of *Dendroica aestiva* apply with reasonable certainty to the eastern form. The bird which Pallas described (*l. c.*) was from Kadiak Island, Alaska, and is fairly well characterized in his diagnosis, the essential portions of which are herewith presented, italicized as in the original:

"*Motacilla rubiginosa*.

M. flavissima, . . . pectori lituris longitudinalibus rufis, rectricibus flavis fusco marginatis. Vibrissae narium et *frons* ad medium usque verticem, lateraque capitis et *subtus* avis tota citreo-flava; frons virescenti nebuloza. . . . Cervix cum *dorso* uropygioque virescit."

oribus; auricularibus, colli capitisque lateribus magis olivaceo-viridi lavatis; necnon remigibus cum alarum tectricibus superioribus minus conspicue flavido marginatis.

Al., 61.5-65.3 (63) mm; caud., 43.2-47.2 (44.4) mm.; exp. culm., 9.4-10.4 (9.9) mm; tars., 17.3-19.3 (18.3) mm.

HABITAT. — Alaska et Columbia Britannica.

DESCRIPTION. — Male, adult, No. 131807 U. S. Nat. Mus.; Kadiak Island, Alaska, June 7, 1893; C. H. Townsend. Above olive green, somewhat more yellowish on crown, auriculars, rump and sides of neck, but with no well-defined yellow crown-patch. Longest feathers of the superior tail-coverts with central portions olive brown. Lores, orbital ring, conspicuous superciliary stripe and lower parts, pure gamboge yellow, slightly shaded with olive green on sides, which, together with jugulum and breast, are streaked with brick red as in *morcomi*. Wings dark olive brown, the lesser coverts like the back, the median, greater and primary coverts, with outer margins of remiges, edged with yellowish olive green; the inner margins of the last broadly canary yellow at base, this color decreasing in amount toward the ends of the feathers. Axillars and under wing-coverts lemon yellow. Tail-feathers dark olive brown, the inner webs broadly lemon yellow, this color on the outer pair occupying all but a terminal guttate spot, and diminishing in extent on each succeeding pair, until it disappears entirely from the two middle rectrices; basal two-thirds of external web of outermost pair also lemon yellow. Outer edges of all the rest, including both margins of two middle feathers, narrowly olive green.

Typical *Dendroica aestiva rubiginosa* differs from *D. æ. morcomi* most noticeably in its darker, less yellowish and almost uniform upper parts, the crown and rump being not in appreciable contrast to the olive green of the back. In consequence of the olivaceous color of the whole pileum, both the yellow eye-ring and superciliary stripe are much more clearly indicated. Minor characters exist in the more olivaceous tint of the auriculars and sides of the neck and head; also in the duller, sometimes scarcely yellowish external edging to wing-quills and their coverts. The color below averages slightly paler, especially on the throat and the lower tail-coverts, though upon examination of a larger series this may prove merely an individual variation. There seems to be no material difference in size. From *Dendroica aestiva* the present form is further separable by the narrower streaking of the breast.

The characters here ascribed to *rubiginosa* are remarkably constant in all of the six adult males from Alaska, though a specimen

from Nushagak (U. S. N. M. No. 86517), and one from the Yukon River (U. S. N. M. No. 54425) are very slightly more yellowish above than the birds from Kadiak (the type locality), and have also the wing edgings somewhat brighter; but these aberrant features are apparently of quite trivial importance. Of three breeding birds from Victoria, British Columbia, two have a fairly well-marked yellow crown-patch, though this is somewhat obscured by olive-green tips to the feathers; but all three specimens are fully as dark above, and in every other respect so much like *rubiginosa* that they are without hesitation referred to this form.

Summer birds from Great Slave Lake (Fort Resolution and Fort Rae) are, however, quite typical of *D. æ. morcomi*; as are also specimens from northern California (Baird and Red Bluff), and one example from Fort Steilacoom, Washington (U. S. N. M. No. 7643). It thus would seem to be indicated that the breeding range of *rubiginosa* is almost, if not entirely, confined to Alaska and British Columbia.

Three Yellow Warblers collected by Dr. Edgar A. Mearns at Mountain Spring, San Diego County, California, May 11, 1894, though rather more yellowish above than average Alaskan specimens, are closely matched by the birds from British Columbia, and are with little doubt referable to *rubiginosa*. A spring specimen from San Antonio, Texas, taken May 3, 1889 (U. S. N. M. No. 152396), and one collected by Mr. Richmond on the Escondido River, Nicaragua, May 5, 1882 (U. S. N. M. No. 128416), are equally similar, and both belong apparently to the race at present under consideration.

Among the 53 North American specimens of *Dendroica æstiva* and *Dendroica æ. morcomi* which have been examined in this connection, there are but three, with regard to whose identity, so far as *rubiginosa* is concerned, any uncertainty might exist. One of these three examples is from Wheatland, Indiana, and approaches the Alaskan race by reason of its almost uniform coloration above, but the olive green portions of its plumage are, upon comparison, seen to be much more suffused with yellowish than in *rubiginosa*, thus leaving no question of its correct identification with *D. æstiva*. The two other aberrant specimens are from Calais, Maine, and Moose Fort, Ontario, respectively; and while in slight details

rather more yellowish than average Alaskan birds, they are still with some difficulty to be distinguished from *rubiginosa*, but nevertheless are perhaps best considered as *D. æstiva*.

The above remarks are, of course, based entirely upon adult males, as the females and young of *rubiginosa*, from Alaska, are apparently not certainly separable from corresponding plumages of *morcomi*, though there are not at hand sufficient specimens with sex and age properly determined, to permit a perfectly satisfactory disposition of this point.

The writer desires to express his indebtedness to Mr. Robert Ridgway for kind permission to make use of the specimens in the National collection and to Dr. Edgar A. Mearns for the privilege of examining the Yellow Warblers collected by the naturalists of the recent International Boundary Commission.

* Detailed measurements of *Dendroica æstiva rubiginosa* are given below.

MEASUREMENTS OF BREEDING SPECIMENS OF *Dendroica æstiva rubiginosa*.

U. S. N. M. No.	Sex.	Locality.	Wing.	Tail.	Exposed Culmen.	Tarsus.	Middle Toe with Claw.
131807	♂	Kadiak Island, Alaska.	65.3	44.2	9.7	19.3	14.5
70106	♂	" " "	64.	45.	9.4	18.3	15.2
54429	♂	" " "	62.7	47.2	10.2	18.5	15.
27267	♂	Yukon R., mouth of Porcupine R., Alaska.	62.2	44.5	9.7	19.	14.7
86517	♂	Nushagak, Alaska.	63.5	43.7	9.9	17.3	14.2
54425	♂	Yukon River, Alaska.	61.5	43.2	9.7	17.8	13.5
153279	♂	Victoria, Brit. Columbia.	63.5	43.9	10.4	17.8	14.7
153280	♂	" " "	62.2	44.2	9.9	18.5	14.5
153278	♂	" " "	62.2	43.7	10.2	17.8	14.2
Average.			63.	44.4	9.9	18.3	14.5

ON THE NOMENCLATURE OF CERTAIN FORMS OF
THE DOWNY WOODPECKER (*DRYOBATES*
PUBESCENS).

BY WILLIAM BREWSTER.

IN accordance with a wish expressed by the Committee on Classification and Nomenclature at its meeting in Cambridge on November 13, 1896, I have investigated certain matters of synonymy suggested by a recent article on the Downy Woodpecker by Mr. Oberholser,¹ who proposes to separate this bird into three geographical races of which *Dryobates pubescens meridionalis*, a small, brownish-breasted form inhabits the "South Atlantic and Gulf States, from South Carolina to Texas" and *Dryobates pubescens nelsoni*, a large and relatively white form, "Alaska and Northern British America"; the bird intermediate in respect to size and coloring and occupying the region lying between the areas just mentioned being considered as representing *Dryobates pubescens verus*.

A similar division was made by Swainson in 1831, in the 'Fauna Boreali-Americana' (Part Second, p. 308), but Swainson applied the name *pubescens* to the Downy Woodpecker of British North America and renamed as a distinct species the bird which "inhabits the middle parts of North America," and that found in "Georgia" calling the former "*Picus (Dendrocopus) medianus*, the Little Midland Woodpecker" (type locality New Jersey), and the latter "*Picus (Dendrocopus) meridionalis*, the Little Georgian Woodpecker" (type locality Georgia). Mr. Oberholser of course credits the name *meridionalis* to Swainson, with an appropriate reference to the 'Fauna Boreali-Americana', but he makes no allusion to Swainson's treatment of the other two forms, nor does he give his reasons for restricting the name *pubescens* to the midland bird. In the synonymy of *Dryobates pubescens meridionalis*, however, he cites "*Picus pubescens*, Linnæus, Syst. Nat., Ed. 12, 1766, I, 175 (*part*)", the insertion of the final word in parenthesis indicating that he regards this name as only in part applicable to the southern race.

¹ Proc. U. S. Nat. Mus., Vol. XVIII, No. 1080, pp. 547-550.

Linnæus based his *Picus pubescens* on Catesby and Brisson. There can be no doubt as to Catesby's bird, for that author says distinctly in his introduction that the collections on which his work was based were all made either in "the inhabited Parts of *Carolina*" which "extend West from the Sea about 60 Miles" or "at and about *Fort Moore*, a small Fortress on the Banks of the River *Savanna*, which runs from thence a Course of 300 Miles down to the Sea, and is about the same Distance from its Source, in the Mountains." The whole of this region, of course, is included in the range of *meridionalis* and Swainson's type, of that form came from the neighboring State of Georgia.

Brisson gives a detailed description, evidently drawn from a specimen in hand, but he does not mention from whence his bird came. As he is ordinarily careful to state not only the locality but the collector's name, it seems probable that in this instance he had no definite knowledge on either point, and that his statement "on les trouve en *Virginie & à la Caroline*" was made largely on the authority of Catesby, whom he cites in his synonymy and whose work he appears to think related to Virginia as well as to the Carolinas. He also cites Klein but this author's *Picus varius minimus*¹ was based wholly on Castesby.

Mr. Oberholser says that the Downy Woodpeckers which he has examined "from North Carolina . . . and extreme Southern Virginia, appear to be intermediate between *D. pubescens meridionalis* and *D. pubescens*; and these, although not above included, are perhaps without impropriety referable to *D. pubescens meridionalis*." If Brisson's bird really came from Virginia it was probably taken somewhere not far from the coast and in the southern part of the State. Its measurements favor this hypothesis, for they indicate an exceptionally small bird of even the southern form. It is impossible, however, to ascertain definitely from whence this specimen was derived. It may have been taken almost anywhere in eastern North America—in Canada, for instance, where many of Brisson's birds were obtained.

These facts and considerations have led me to conclude that Mr. Oberholser's position is not tenable, and that if the separation

¹ *Historiæ Avium Prodrömus*, 1750, p. 27.

which he advocates be deemed advisable, we should regard the Southern Downy Woodpecker as the true *Dryobates pubescens* (Linn.), calling the bird of the middle region *Dryobates pubescens medianus* (Sw.) and that of northern British America *Dryobates pubescens nelsoni* Oberholser. The alternative would be to adopt Swainson's arrangement *in toto*, for if not applicable to the southern form the name *pubescens* is subspecifically indeterminate and Swainson was within his rights in restricting it to the Downy Woodpecker of the far north and in bestowing new names on the other two birds.

FOURTEENTH CONGRESS OF THE AMERICAN ORNITHOLOGISTS' UNION.

THE FOURTEENTH CONGRESS of the American Ornithologists' Union convened in Cambridge, Mass., Monday evening, November 9, 1896. The business meeting was held at the residence of Mr. Charles F. Batchelder. The public sessions, lasting three days, were held in the Nash Lecture-room of the University Museum, commencing Tuesday, November 10.

BUSINESS SESSION.—The meeting was called to order by the President, Mr. William Brewster. Thirteen Active Members were present. The Secretary's report gave the membership of the Union at the opening of the present Congress as 673, constituted as follows: Active, 47; Honorary, 19; Corresponding, 67; Associate 540.

During the year the Union lost seventy-two members,—seven by death, fifteen by resignation, and fifty were dropped for non-payment of dues. The members lost by death were Henry Seebohm,¹ an Honorary Member, who died in London, England, November 26, 1895, aged 63 years; Dr. Juan Gundlach,² who died in Havana, Cuba, March 14, 1896, at the age of 85, also an

¹ For an obituary notice, see Auk, XIII, 1896, pp. 96-97.

² For an obituary notice, see *Ibid.*, p. 267.

Honorary Member; and Thomas Lyttleton,¹ Lord Lilford, late President of the British Ornithologists' Union, a Corresponding Member, who died at Lilford Hall, Oundle, Northamptonshire, England, June 17, 1896, aged 63 years. Also the following Associates: Dr. Willard L. Maris,² who died in Philadelphia, Dec. 11, 1895; Clarence A. Smith,³ who died in New York City, May 6, 1896, aged 22; Howard Gardiner Nichols,⁴ who died in Atlanta, Ga., June 23, 1896, aged 25; and Eugene C. Thurber,⁵ who died at Alhambra, Calif., September 6, 1896, aged 31.

The report of the Treasurer showed the finances of the Union to be in good condition.

The Amendments to the By-Laws proposed at the Thirteenth Congress were considered; part were adopted and part rejected.⁶

An election of officers was then held under the provisions of the change in the By-Laws making the Ex-Presidents of the Union Councillors. This required the election of three new members to the Council. The officers of the previous year were all re-elected with Mr. Chas. B. Cory, and Drs. Jonathan Dwight, Jr., and L. Stejneger as new members of the Council. Dr. Walter Faxon, of Cambridge, Mass., was elected an Active Member, and seventy-eight new members were added to the list of Associates. The usual reports of Standing Committees were received.

PUBLIC SESSION. *First Day.*—The meeting was called to order by the President, Mr. Brewster. An address of welcome was made by Dr. Geo. L. Goodale, on behalf of Harvard University.

Mr. William Dutcher, Chairman of the 'Committee on Protection of North American Birds,' then read the report of his committee for the past year. The report is published in full in this number of 'The Auk' (pp. 21-32), and will be reprinted as a separate pamphlet.

¹ For an obituary notice, see *Auk*, XIII, p. 348.

² For an obituary notice, see *Ibid.*, p. 193.

³ For an obituary notice, see *Ibid.*, pp. 267-268.

⁴ For an obituary notice, see *Ibid.*, XIV, Jan. 1897, under 'Notes and News.'

⁵ For an obituary notice, see *Ibid.*, XIII, p. 349.

⁶ See under the department of 'Notes and News' in the present number of 'The Auk.'

The Union was honored by the presence of Miss Maria R. Audubon, granddaughter of the renowned naturalist. In her behalf Dr. Elliott Coues exhibited some recently discovered manuscript journals of John James Audubon, including the one giving an account of his famous trip up the Missouri River. A vote of thanks was tendered Miss Audubon for her kindness in allowing the manuscripts to be seen.

Under the title 'Ornithological Publications, Present and Prospective,' Dr. Coues laid before the Union an advance copy of 'Papers presented to the World's Congress on Ornithology,' of which he was the responsible editor. He also stated that he was engaged in the preparation of a new edition of his 'Key to North American Birds,' and in conjunction with a well known author was writing a bird-book for beginners.

Mr. Louis Agassiz Fuertes exhibited and explained a collection of his own unpublished drawings of birds, made from life.

The opening paper of the afternoon session was by Mr. Frank M. Chapman, entitled 'An Ornithological Tour in Yucatan.' The members and visitors repaired to the Geological Room of the University Museum where lantern slides illustrating this paper were shown.

The second title was 'Some New England Birds' Nests,' by Mr. William Brewster. He illustrated his paper with lantern slides from original photographs. Remarks followed by Messrs. Chapman, Bent, Chamberlain, Clark, Batchelder, and Rev. H. K. Job.

Second Day.—The meeting was called to order by the President, Mr. Brewster.

The reading of scientific papers began with one by Dr. Jonathan Dwight, Jr., on 'The Philadelphia Vireo (*Vireo philadelphicus*).' Remarks followed by Mr. Bradford Torrey, Dr. Coues, the Chair, and the author.

The next paper was by the same author on 'The Molt of the Song Sparrow (*Melospiza fasciata*), and of the Red-eyed Vireo (*Vireo olivaceus*).' Remarks followed by Messrs. F. H. Kennard, Frank M. Chapman, the Chair, and the author.

The third title of the morning was 'Notes on the Black Rail (*Porzana jamaicensis*) in Southern Connecticut,' by Judge John N. Clark. Remarks followed by Messrs. Torrey and Deane, the Chair, and the author.

Some bird-drawings, the work of Mr. Ernest E. Thompson, were shown by Mr. Frank M. Chapman.

A vote of thanks was given Mr. Dutcher for the admirable manner in which his accounts with the Union had been kept during his long service as Treasurer.

The feature of the afternoon session was the open-air talk by Mr. Abbott H. Thayer, demonstrating his theory of the principles of protective coloration. Mr. Thayer placed three sweet potatoes, or objects of corresponding shape and size, horizontally on a wire a few inches above the ground. They were covered with some sticky material, and dry earth from the road on which they stood was sprinkled over them so that they would be the same color as the background. The two end ones were then painted white on the under side, and the white color was shaded up and gradually mixed with the brown of the sides. When viewed from a little distance these two end ones, which were white below, disappeared from sight, while the middle one stood out in strong relief and appeared much darker than it really was. Mr. Thayer explained that terrestrial birds and mammals which are protectively colored have the under parts white or very light in color, and that the color of the under parts usually shades gradually into that of the upper parts. This is essential in order to counteract the effect of the shadow, which otherwise, as shown by the middle potato, makes the object abnormally conspicuous and causes it to appear much darker than it really is. In the case of Mr. Thayer's experiment some of the witnesses could hardly believe that the striking difference in the visibility of the three potatoes was entirely due to the coloring of the under side, and Mr. Thayer was asked to color the middle one like the two others in order that the effect might be observed. Mr. Thayer complied with the request, painting the under side of the middle potato white, and shading the white up into the sides as in the case of the others. The effect was almost magical. The middle potato at once disappeared from view. A similar experiment was tried on the lawn. Two potatoes were painted green to resemble the green of the grass above which they were suspended. One was painted white on the under side and at once became invisible when viewed from a little distance, while the other showed plainly and seemed very dark, the shadow, superadded to the green of

the under side, making it remarkably conspicuous. The experiments were an overwhelming success. Discussion followed (in the Nash Lecture-room) by Drs. Merriam, Coues and Allen, Messrs. Phelps, Chapman and Fuertes, the Chair, and the author. The thanks of the Union were tendered Mr. Thayer.

Third Day.—The meeting was called to order by the President, Mr. Brewster. Before proceeding to the reading of papers, resolutions were adopted thanking Prof. Geo. L. Goodale, and the Geological Department of Harvard University for the use of their respective lecture-rooms for a place of meeting, and for other courtesies tendered to the Union; and to the Nuttall Ornithological Club for the cordial welcome and generous hospitalities extended to visiting members.

The first paper of the morning was by Dr. C. Hart Merriam, who spoke informally about some of the birds of Oregon.

Mr. Brewster then exhibited a series of Redpolls, and talked in an informal way about 'Two Curious Birds Nests.'

The opening paper of the afternoon was 'On the Terns of Penikese Island, Massachusetts,' by Geo. H. Mackay. It was read by Mr. Reginald Heber Howe, Jr. Remarks followed by Messrs. Fuertes, Dutcher, Howe, the Chair, and the author.

Mr. Edward H. Forbush, Field Director of the Massachusetts Gypsy Moth Commission, asked for information and suggestions regarding the advisability of introducing into the United States foreign birds that feed upon the eggs of the gypsy moth. It was the opinion of those who discussed the matter that such a scheme would be impracticable.

Owing to the lack of time for their presentation in full the following papers were read by title.

'The Fringillidæ of Dodge County, Wisconsin,' by Will Edwin Snyder.

'Some Notes on the Nesting Habits of the White-tailed Kite (*Elanus leucurus*). With exhibition of eggs,' by Chester Barlow.

'On the Terns of Muskeget Island, Massachusetts,' by George H. Mackay.

The Union then adjourned to meet at the American Museum of Natural History, New York City, November 8, 1897.

JNO. H. SAGE, *Secretary*.

Portland, Conn., Nov. 30, 1896.

GENERAL NOTES.

The Nostrils in Young Cormorants.—Through the kindness of Mr. R. C. McGregor and Mr. Curtis Clay Young I have come into the possession of a considerable series of crania of Cormorants, from a very early stage of incubation up to the twenty-eighth day after hatching. In the oldest of these skulls the external nostrils are still open, and the bones of the palate have not coalesced, and the probabilities are, as already stated, that the external nostrils close about the time the young Cormorants take to the water and begin to feed themselves.—F. A. LUCAS, *Washington, D. C.*

Labrador Duck.—In the Museum at Amiens in France, which is located in a temporary and very unworthy building by the river, I was surprised to come across a fine adult male Labrador Duck, *Camptolaimus labradorius*, in good preservation. It was unknown to Mr. William Dutcher when revising the list of extant specimens (Auk, 1891, p. 201), but I conclude that it is probably one of the specimens which he mentions to have been sent to Europe by Mr. John Akhurst prior to 1850 (*op. cit.*, 1893, p. 270).—J. H. GURNEY, *Keswick Hall, Norwich, England.*

* **Nesting of the Larger White-cheeked Goose** (*Branta canadensis occidentalis*) in Okanogan Co., Wash.—In May, 1896, a nest of this species was located in the gorge of the Columbia River due east of Chelan. A visit paid to it on May 13 led me through a wild stretch where the cliffs press in upon the swirling river. I began to walk softly over a rocky point which projected over the stream at about fifty feet above high-water mark. I had seen a Goose push out from the shore below and hoped his mate might be on the nest. I was not to be disappointed, for as I rose over the crest of the rocky point the mother Goose flew off with a loud squawk, and I had in addition a vision of something green flying through the air. In a shelf of rock commanding the river below three green goslings, newly hatched, were resting on a bed of down. Pale green egg shells were lying about the nest as a reminder of what might have been. The green thing "flying through the air" proved to be a fourth gosling which Mother Goose had knocked off the nest in her haste, but I rescued him from a cleft in the rock twenty feet below, where he had been fortunately caught before striking the fierce current of the river, and returned him apparently none the worse for his tumble. The nestlings were in general of a bright grass-green color mottled with a shade of olive. The nest was entirely composed of soft down from the Goose's breast.

The Larger White-cheeked Geese are the first birds to arrive in the Chelan valley in February, and they leave the wheat fields, reluctantly enough, in December. Their breeding in the county seems to be alto-

gether by detached pairs, although in some places where unusually abundant they gather daily for a sociable feed. — WILLIAM L. DAWSON, Oberlin, Ohio.

A New Bird for the Virginias.—I have lately received from Mr. Thaddeus Surber, White Sulphur Springs, West Virginia, a young male specimen of the Stilt Sandpiper (*Micropalama himantopus*) which was taken on November 2, 1896, near Caldwell, P. O., on the Greenbrier River, six miles from the above mentioned Springs. This species has not hitherto been reported from either Virginia or West Virginia, although a bird from the Patuxent River, Md., has been recorded by Mr. Hugh M. Smith (Auk, Vol. III, p. 139). — WILLIAM C. RIVES, M. D., New York City.

Asarcia spinosa.—In Vol. XXIV of the British Museum Catalogue of Birds, Limicolæ, p. 86, 1896, Dr. Sharpe names a genus *Asarcia*, type *Parra variabilis* Linn., 1766, as distinguished from *Jacana* proper by the reduction of the facial appendages to a comparatively small frontal leaf, which is trifid, somewhat like a fleur-de-lis; the same cutaneous excrescence in the type of *Jacana* being bifid or heart-shaped, and supplemented by a pair of wattles. Assuming the generic sufficiency of this distinction, I may remark that Dr. Sharpe's use of the specific term *variabilis* in this connection is at variance with A. O. U. canons of nomenclature. As shown by Elliot, Auk, July, 1888, p. 298, and as admitted by Sharpe, *l. c.*, *Parra variabilis* Linn., S. N. 1766, p. 260, was based on Edwards's Nat. Hist. I. 1743, p. and pl. 48, as a mere renaming of *Fulica spinosa* Linn. S. N. 1758, p. 152, which had the identical basis of Edwards's pl. 48. Consequently *variabilis* is untenable by our rules, and the species should continue to stand as *Jacana spinosa*, unless we recognize the new generic name; in which probable contingency *Asarcia spinosa* becomes the onym of the bird. — ELLIOTT COUES, Washington, D. C.

The Passenger Pigeon (*Ectopistes migratorius*) in Lewis County, N. Y.—In the Boonville (N. Y.) 'Herald' of May 27, 1896, appeared an item to the effect that Mr. Henry Felshaw had recently seen "a large flock of Wild Pigeons, perhaps 300 in number, flying westward." On writing to Mr. Felshaw he replied that there was no possibility of his having been mistaken, as he had shot, trapped and netted thousands of these birds, in former years, and the flock in question was seen when not more than fifteen rods distant. The flock, as said, numbered about 300, and was seen at about 5.30 A. M. on May 22, the locality being Constableville, Lewis County, N. Y. He further states, "I mounted, last spring (in April, I think) a cock Pigeon that was shot somewhere near North Western." — W. S. JOHNSON, Boonville, N. Y.

Melopelia leucoptera in Osceola County, Florida.—The National Museum has recently received a wing and foot of this species from Prof. W.

B. Hinton, of Kissimmee, Florida, Superintendent of Schools for Osceola County, who, under date of November 16, 1896, gives the following information concerning it.

"Mr. J. R. Graves, proprietor of the 'Lake House,' purchased some Quail a few days ago from a young fellow from the country, and among the Quail was this Dove. Knowing my fondness for birds he gave me the Dove. It was put in a coop (6 X 9 ft.) with some Carolina Doves and some Quail, where it seemed to be contented for two or three days, eating wheat and corn grits with as much relish as would a cooped chicken. But something frightened it from its roost night before last and it killed itself by flying against the woven wire with which the coop is covered. The astonishing thing is the velocity with which the bird flies, even at the moment it springs into the air. The coop mentioned is only four feet tall; yet this Dove struck the wire with such force as almost to strip one of its wings from its body, exposing, also, its windpipe completely."

So far as I am aware, this species has never before been observed so far north in Florida, where, even much farther south, its occurrence seems to be exceedingly rare.—ROBERT RIDGWAY, *Washington, D. C.*

The California Vulture in Alberta.—On the 10th of September last (1896) I saw between Calgary and the Rocky Mountains two fine specimens of the California Vulture, *Pseudogryphus californianus*. I was not aware that this bird was found east of the Rocky Mountains, or so far north as the point above mentioned.—J. FANNIN, *Provincial Museum, Victoria, B. C.*

Golden Eagle (*Aquila chrysaetos*) taken near New Haven, Conn.—I have a fine Golden Eagle, killed in Woodbridge, within five miles of New Haven, about Oct. 1, 1896. I received it in the flesh the next day after it was killed. It was eating a Red-tailed Hawk when killed, and we took portions of the Hawk from its crop. It was a female, in fine plumage.—A. E. VERRILL, *New Haven, Conn.*

Abundance of Owls on the Coast of British Columbia.—Never in the history of my observations, which covers a period of thirty years, has there been such a gathering of Owls on the coast of British Columbia as that which has taken place this fall. The gathering is represented by the following species: Dusky Horned Owl (*Bubo virginianus saturatus*), Snowy Owl (*Nyctea nyctea*), Kennicott's Screech Owl (*Megascops asio kennicottii*), and the California Pygmy Owl (*Glaucidium gnoma californicum*).

They have literally invaded the land, and the two first mentioned species are playing havoc with chickens, turkeys, quail, in fact anything they can lay their claws on. The extreme cold weather reported in the North is probably the cause of this migration.—J. FANNIN, *Provincial Museum, Victoria, B. C.*

The Cuculidæ of the A. O. U. List.—I am sorry to perceive that our treatment of this family involves several errors. One of these is a mere blunder, almost self-corrective; another is a grammatical mistake, easily set right; but two others are ornithological improprieties of considerable taxonomic consequence.

1. *Cuculus canorus telephonus* appears as a member of the "Subfamily *Coccyginæ*, American Cuckoos," which of course it is not. This is a mere editorial inadvertency, or mechanical defect in the make-up of the List, by omission of a heading "Subfamily *Cuculinæ*" to cover this case. The 'break' is obvious, and easily mended.

2. "*Coccyginæ*" appears as the name of the American subfamily. This should be *Coccyzinæ*, of course, as derived from the name of the genus *Coccyzus*. I am well aware that the form *Coccyginæ* is used by many writers, including myself; it has so stood in the 'Key' since 1884 after Baird, Cabanis, and others, who alter *Coccyzus* of Vieillot into *Coccygus*. But those who preserve the original orthography of names, however faulty, must write *Coccyzus* and consequently *Coccyzinæ*, as I did in the orig. ed. of the 'Key', 1872. (This criticism does not reach our use of *Coccyges* as a subordinal term, for the latter is independently formed direct from the Greek κόκκυξ, a cuckoo, not from any generic name.) I am happy to be able to defend Vieillot's *Coccyzus* on good linguistic grounds; for it is derivable direct from the classic Greek verb κοκκυζω, 'I cry 'cuckoo.' We are therefore philologically justified, as well as canonically correct, in using *Coccyzus* and *Coccyzinæ*. I may remark, in passing, the quite gratuitous changes which have been rung upon *Coccyzus*, namely: *Coccyzon*, *Coccygius*, *Coccyssus*, *Coccygus*, *Coccyzius*, *Coccygon*, *Coccyua*, *Coccyzæa*, and probably yet other forms, all of them superfluous and supererogatory.

3. *Coccyzinæ*. As to the necessity or expediency of recognizing for the American Tree Cuckoos any subfamily apart from Old World *Cuculinæ*, there may easily be two opinions. I have kept them apart in all my works, but am coming to the conclusion that they can hardly be so considered, if we duly regard the various interrelations of genera in the whole family *Cuculidæ*. The strongest character I have seen ascribed to the American forms is that adduced by Beddard, P. Z. S. 1885, p. 187, who finds the ventral pteryla double at its commencement in *Coccyzus*, *Piaya*, *Saurothera*, and perhaps *Diplopterus*, it being there single in *Cuculus*, etc. But even Beddard brings all these forms under one subfamily, *Cuculinæ*; and Shelley, Cat. B. Brit. Mus., XIX, 1891, p. 211, finds no supergeneric difference between *Coccyzus* and *Cuculus*, though he recognizes altogether no fewer than six subfamilies of *Cuculidæ*. I should wish to be better informed than I am before pronouncing upon this case without reserve; but my present impression is, that *Coccyzinæ* must be abandoned as a subfamily, and merged in *Cuculinæ*, substantially according to Beddard's views.

4. *Neomorphinae*. However the doubt just expressed regarding *Coccyzinae* be finally resolved, there is no question that we must recognize for the group of which *Geococcyx* is a shining example a subfamily apart from *Coccyzinae* (or *Cuculinae*) on the one hand, and from *Crotophaginae* on the other. This is the group of American Ground Cuckoos which I have for many years been calling *Saurotherinae*; but it now appears that the genus *Saurothera* does not belong to it, and that its proper name is *Neomorphinae*, derived from the name of that genus (*Neomorphus* GLOGER, 1827) which has priority over all the others which belong to this subfamily. The *Neomorphinae* are a well-marked if not yet precisely limited group, much more nearly related to the *Crotophaginae* than to any other. Thus, they possess the accessory femorocaudal muscle, which is present in none of the *Cuculinae* (or *Coccyginae*); and the ventral pteryla of each side is furcate. In these respects the *Neomorphinae*, so characteristic of America, agree with the Old World *Centropodinae* but differ therefrom notably in some other characters. The *Neomorphinae* agree with the *Crotophaginae* in most respects, but differ in their pseudobronchial instead of truly bronchial syringes, and many other particulars. The *Neomorphinae* are Ground Cuckoos, with a certain gallinaceous suggestiveness, being more or less pheasant-like in external appearance; tail of 10 rectrices, as usual in the family (not 8, as in *Crotophaginae*), long and graduated, with elongated upper coverts (approaching *Diplopterus* and *Dromococcyx* in this respect); wings short, rounded, convex, with elongate inner secondaries (not long, flat, and pointed, as in *Cuculinae* or *Coccyzinae*); feet large and strong, in adaptation to terrestrial habits (as in *Centropus*, etc., but without any peculiarity of the hind claw). With the possible or probable exception of *Carpococcyx*, which is brought under *Neomorphinae* by Shelley, though it inhabits Borneo, and is therefore unintelligible as a member of this subfamily, if it be really such, the present subfamily is exclusively American. The genera which certainly compose it are *Neomorphus*, *Geococcyx*, and *Morococcyx*; very likely *Diplopterus* and *Dromococcyx* might without violence be brought under the same head. But until we know more of the structural characters of the two last named genera, as well as of *Saurothera*, *Piaya*, and *Hyetornis*, it will hardly be safe to pronounce upon these Neotropical forms.

The times may not yet be ripe enough to do away with all the uncertainty attending the division of *Cuculidae*; but what I regard as established is, that the A. O. U. List contains representatives of at least three subfamilies: (1) CROTOPHAGINÆ. (2) NEOMORPHINÆ. (3) CUCULINÆ. The latter may or may not be warrantably divisible into *Coccyzinae* for the American genera *Coccyzus*, etc., and *Cuculinae* proper for our waif from Asia.—ELLIOTT COUES, *Washington, D. C.*

Broad-tailed Hummingbird in California.—I take pleasure in recording the capture of *Selasphorus platycercus*, ♂ ad., at Oakland, Cal., on May 8, 1890, the first taken in this State. On the same date an adult male of

Calypte costæ was also secured, which extends its recorded range somewhat to the north in California. A number of *Stellula calliope*, ♂♂, were collected in April, the result of a bird wave. These birds are in the mounted collection of Mr. Walter E. Bryant, who kindly furnished me these data.—RICHARD C. MCGREGOR, Palo Alto, Cal.

Authority for the Name *Myiarchus mexicanus*.—The A. O. U. List, 2d ed. 1895, No. 453, cites *Myiarchus mexicanus* Baird, B. N. A., 1858, p. 179, as the tenable name for the *Tyrannula mexicana* of Kaup, P. Z. S. 1851, p. 51. This is an error; for Baird's *M. mexicanus* of 1858 is *M. cinerascens*, as shown by the synonymy he adduces, the habitat he assigns, and the description he gives. Baird's *mexicanus* has also been almost universally considered a synonym of *cinerascens*, as by Dr. Sclater in many places; by myself in my monograph of *Myiarchus*, and in the 'Key,' 2d-4th eds., 1884-90; and such reference of his name is implied by Baird himself, Hist. N. A. Birds, II, 1874, p. 331, where "*Myiarchus mexicanus*, KAUP, LAWR." appears, to the exclusion of *M. mexicanus* Bd.

The A. O. U. List, 1st ed., 1886, No. 453, cites as authority for the name *Myiarchus mexicanus* Lawr. Ann. Lyc. N. Y., IX, May, 1869, p. 202. This is probably correct; for *M. mexicanus* Dresser, Ibis, 1865, p. 473, though referring to the Texas bird, is undoubtedly *cinerascens*, as indicated by the locality, San Antonio, where *cinerascens* is known to occur.—ELLIOTT COUES, Washington, D. C.

Hepburn's *Leucosticte* (*Leucosticte tephrocotis littoralis*) in Summer, in Okanogan County, Washington.—While engaged in exploring Wright's Peak (alt. 9,310 feet), in the high ranges west of Lake Chelan, our party made camp on a mountain shoulder at the foot of a glacier, at an elevation of about 8,000 feet. Here amidst the ice and snow was to be seen a pair of the *Leucostictes* feeding their brood of full grown young. On account of their rosy, warm coats they seemed utterly disregarding of the bitter winds, and flitted freely from point to point on the morainic piles or hopped about on the snow. The parent birds appeared to forage two or three thousand feet down the mountain side—there was nothing above but rock—and when they appeared over the edge of the mountain wall, in returning from their excursions, the young would set up an eager clamor. The ashy hood to be seen in the adult birds was entirely absent in the young. Otherwise there was no marked difference in appearance at a slight distance. The birds were observed Aug. 5 to 8, 1896.—WILLIAM L. DAWSON, Oberlin, Ohio.

***Ammodramus* (*Passerculus*) *sanctorum*.**—This bird is described in the 'Key,' 1884, 2d ed., p. 364, as *Passerculus sanctorum*, but has been ignored by the A. O. U., perhaps on account of my expressed doubt as to its validity. The type specimen, from San Benito Island in the Gulf of California, and another, also collected at the same time by Dr. T. H. Streets, U. S. N., are both in the Mus. Smiths. Inst. They were not in

good order, and did not furnish entirely satisfactory indications. But we now have a fine series from this identical island, showing the assigned specific characters to be valid; and the species has been promptly accepted by the A. O. U. Committee. I refrain from further remarks, not wishing to anticipate anything that Mr. A. W. Anthony, the rediscoverer of the species, may have to say on the subject.

While on the genus or subgenus *Passerculus*, I may note a possible nomenclatural question which seems incident to our reference of *Passerculus* to the genus *Ammodramus*. This gives us the name *A. savanna* for one species, and *A. savannarum* for another. As these two names are of course the same word, only differing in terminal inflection, it may be that both cannot stand in the same genus. If so, it becomes a particularly awkward and unlucky matter; for *savannarum* GM., 1788, after Latham, Brisson, and Sloane, for the Jamaican form of the Yellow-winged Sparrow, antedates *savanna* WILS., 1811, for the Savannah Sparrow, and thus the latter unhappy bird loses its claim to its most distinctive designation—the very one, too, that gives it its common English name. As I do not find any other subspecific name that has been applied to our familiar eastern form, this may require a new one. I am quite ready to sink *Coturniculus* in *Ammodramus*, but think we may well recognize *Passerculus* as a full genus. That would seem to be one way out of the present difficulty, but does not do away with the real trouble, which goes back to *Fringilla savanna* WILS. vs. *Fringilla savannarum* GM. Failing any other resource, our Eastern Savannah Sparrow may be called *Ammodramus* (*Passerculus*) *sandwichensis wilsonianus*.—ELLIOTT COUES, Washington, D. C.

Occurrence of Baird's Sparrow (*Ammodramus bairdii*) in Washington.

—On the 5th of September, 1895, while residing at Chelan in Okanogan County, Washington, I first met this bird. Only one specimen was secured, but the birds were abundant on weedy bottom lands along the lower end of Lake Chelan. They kept for the most part pretty close to the ground, where they seemed to be feeding on a little wild bean. The migration was noted up to the 9th, when the last specimens were seen.

The return movement of spring was less noticeable. On the 29th of April, 1896, I came across perhaps a dozen Baird's Sparrows in the sagebrush of an upland pasture, mixing freely with *Zonotrichia leucophrys intermedia*. An elegant male, with yellow areas in maximum color, was taken from a willow clump by the water's edge on May 11.—WILLIAM L. DAWSON, Oberlin, Ohio.

Acadian Sparrow in Yates County, N. Y.—Oct. 7, 1896, I took a male Acadian Sparrow (*Ammodramus caudacutus subvirgatus*) and saw one more. The one I took was identified by Dr. Jonathan Dwight, Jr. I think there were more of them here, as the marsh grass was full of small Sparrows, but I was only sure of seeing two of the Acadian.—VERDI BURTCH, Penn Yan, N. Y.

Note on *Junco annectens* Baird and *J. ridgwayi* Mearns.—Although Professor Baird based his *Junco annectens* (Ornithology of California, I, 1870, p. 564) on several specimens representing the bird which we have been accustomed to call by that name and one example typical of *J. ridgwayi* Mearns (Auk, VII, July, 1890, p. 243), reference to these specimens and careful comparison with Prof. Baird's description show clearly that the rufous-backed specimen is the type of *J. annectens*. *Junco ridgwayi* Mearns, therefore, becomes a synonym of *J. annectens* Baird, and the other form (*J. annectens*, Auct. nec Baird) being without a name I take pleasure in bestowing upon it the name *Junco mearnsi*, in compliment to my friend, Dr. Edgar A. Mearns, U. S. A.

Junco mearnsi is similar to *J. annectens*, but may easily be distinguished by having the back hair brown, not conspicuously different in color from the gray of hind neck and rump, instead of being bright rusty or rufous, as in *J. caniceps*.

The type of *J. mearnsi* is No. 11164, U. S. Nat. Mus., ♂ ad., Fort Bridger, Wyoming, April 12, 1858; C. Drexler. The type of *J. annectens* is No. 10701, U. S. Nat. Mus., ♀ ad., Fort Bridger, May 28, 1858; C. Drexler.—ROBERT RIDGWAY, Washington, D. C.

Rectifications of Synonymy in the Genus *Junco*.—The *Junco hyemalis danbyi* which I described in the Nidologist, III, No. 2, Oct. 1895, p. 14, as a provisional new subspecies from the Black Hills, and named for Prof. Durward E. Danby, principal of the high school of Custer, S. D., proves to be simply the young of *J. aikenii*, the characteristic representative of the genus in the said region. The type specimen, lacking the white wing-bars of the adult, has lately been deposited in the U. S. National Museum. The naming of the supposed new form will prove to have been not entirely in vain if it serves to emphasize the fact that *J. aikenii* is so thoroughly distinct from *J. hyemalis* that it can be recognized at any age, apart from the presence of its supposed chief distinctive characters—the white wing-bars. These are wanting at first, in birds of the year, and first appear as two rows of white dots on the ends of the median and greater coverts, respectively; these dots enlarge to spots by degrees, and finally coalesce as complete bars. The bird could not be mistaken for *hyemalis* at any age; the 'aspect' in life, even at gunshot range, is distinctive; for one receives the impression of a large gray bird, more like *caniceps* than like *hyemalis*.

J. h. connectens of my 'Key', 2d-4th eds., 1884-90, p. 378, is a good subspecies which has been accidentally overlooked by the A. O. U. Committee on Classification and Nomenclature in preparing both the editions of our Check-List, 1886 and 1895. In fact it also escaped my own memory, until it was brought to mind by the description of *J. h. shufeldti* by Mr. Coale, in The Auk, IV, Oct. 1887, p. 330; since which time I have been intending to bring up the case for final readjustment, but have meanwhile been much preoccupied with other than ornithological affairs. Mr. Coale's

shufeldti of 1887 is my *connectens* of 1884, characterized in the 'Key' as intermediate between *hyemalis* proper and *oregonus* proper, and as occupying a range between the habitats of the two forms as now restricted—that is, the interior region at large, and especially the Rocky Mountain region. I remember characterizing this form hypothetically some twelve or fifteen years ago, at which time I picked out type-specimens from a lot of Juncos which I examined in the South Tower of the Smithsonian Institution, in the presence of Mr. Brewster, Dr. Allen, Mr. Ridgway and others; these type specimens belonged to Mr. Brewster's collection and one of them has just now been identified by the A. O. U. Committee with what we have been calling *shufeldti*. Thus the case is perfectly clear, and the subspecies rests securely upon the diagnosis given in the 'Key' in 1884. The requisite rectification of synonymy will be made in the next supplement to the last edition of our Check-List. I only regret that I have been so dilatory in bringing the case up.—ELLIOTT COUES, *Washington, D. C.*

Spiza americana near Kingston, New York.—The familiar song of this species attracted my attention as I was driving a few miles from Kingston on June 5, 1896. The bird proved to be a full-plumaged male, but I was unable to secure him at the time or to return later to the same spot. The occurrence, however, of the species in the Hudson River Valley seems worthy of special mention.—JONATHAN DWIGHT, JR., M. D., *New York City.*

Correct Nomenclature of the Texas Cardinal.—Having very recently, for the first time, seen the original description of *Cardinalis sinuatus* Bonaparte, I was much surprised to find the locality given as "the western parts of Mexico." The name *sinuatus* belongs, therefore, in a restricted sense, to the form which I characterized, in 1887, as *Pyrrhuloxia sinuata beckhami*, under the erroneous supposition that Bonaparte's bird was the eastern form; consequently, the latter requires a subspecific name; and, being known in the vernacular as the Texas Cardinal, I propose for No. 594 of the Check-List the name *Pyrrhuloxia sinuata texana*, No. 594 *a.* being the true *P. sinuata*.—ROBERT RIDGWAY, *Washington, D. C.*

Natural Breeding Haunts of the Barn Swallow (*Chelidon erythrogaster*).—The Barn Swallow is such a familiar tenant of our barns and out-houses that it may not have occurred to many to wonder where they nested before man provided them with such resorts. During the summer of 1895, while visiting the headwaters of Lake Chelan, in Washington, I found the Swallows *at home*. The shores of the lake near its head are very precipitous, since the mountains rise here some 7,000 feet above the surface of the water. Along the shore line, in the side of the cliffs, which continue several hundred feet below the water, the waves have hol-

lowed out crannies and caves. In one of these latter, which penetrated the granite wall to a depth of some twenty feet, I found four or five Barn Swallows' nests, some containing young, and two, although it was so late in the season (July 9, 1895), contained eggs. Others were to be found in neighboring crannies outside the cave. Another visit paid to this spot on August 10 of this year (1896) discovered one nest still occupied, which contained four eggs. Although breeding thus in a perfectly primitive state there was no important difference observed in the birds' methods of construction. The nests were either affixed to the vertical walls of the cavern or else rested slightly on rocky knobs and projections. The feathery linings of the nests consisted of copious collections of the feathers of wild fowl, such as Ducks, Grouse, etc.

The only other place in Okanogan County where I recall having seen Barn Swallows was at Malott, some 60 miles distant, where the birds had adopted the manners of civilization and were breeding in a large barn.—
WILLIAM L. DAWSON, *Oberlin, Ohio.*

Characters of *Dendroica caerulescens cairnsi*.—Cairns's Warbler is named by me as a new subspecies in the work entitled: 'Papers Presented to the World's Congress on Ornithology,' pub. Chicago, Nov. 8, 1896, p. 138. It is a local race of the Black-throated Blue Warbler, breeding in the mountains of western North Carolina and eastern Tennessee, where the individuals arrive a week or ten days in advance of those that pass onward in their migration, and may be observed building and rearing their young while the migration in the same region is still going on. At the time I named the subspecies I had seen no specimens, but was satisfied that the bird could not have thus been localized for many generations without developing distinctive characteristics. At the recent meeting of the A. O. U. in Cambridge, I examined several specimens in the cabinet of Mr. William Brewster, collected by the late Mr. Cairns, and was pleased to find my prescience in the case confirmed upon comparison with a large series of the ordinary form from many different localities. The examination was made in company with Mr. Brewster, Dr. Allen, Mr. Chapman and others, who were immediately persuaded of the subspecific validity of the new form; and the Committee on Classification and Nomenclature at once voted unanimously to accept it. The bird is somewhat smaller than the average of *D. caerulescens*, and has the middle of the back nearly or quite black, instead of blue, or blue with only a few black touches. Some specimens in the large series were fortunately found to be intermediate, showing intergradation with the typical form, and thus relieving me from the necessity of recognizing *cairnsi* as a full species. The diagnosis of the new subspecies may be given as: ♂ *D. caerulescens simillima, sed minor, dorsoque medio nigro*. It is dedicated to its discoverer and original describer, Mr. John S. Cairns, of Weaverville, N. C., whose lamented death was recently noticed in these pages, and whose interesting article upon the summer home and nidification of the

bird occupies pp. 136-139 of the book named in the beginning of this note. The specimen which I have selected as the type of *cairnsi* is in Mr. Brewster's collection; it is a ♂, in full dress, and was collected by Mr. Cairns. — ELLIOTT COUES, *Washington, D. C.*

Dendroica cærulea vs. Dendroica rara. — *Sylvia cærulea* WILSON (Am. Orn. II, 1810, 141, etc.), the earliest name for the Cerulean Warbler, is unfortunately preoccupied by *Sylvia cærulea* LATHAM (Index Orn. II, 1790, 540), which is a synonym of *Poliophtila cærulea* (LINN.); hence, No. 658, of the A. O. U. Check-List becomes *Dendroica rara* (WILSON) (*Sylvia rara*, WILSON, Am. Orn. III, 1811, 119, pl. 27, fig. 2). — ROBERT RIDGWAY, *Washington, D. C.*

Note on the Genus Lucar of Bartram. — The names given to many North American birds by William Bartram in his 'Travels,' orig. ed. 1791, are likely to raise nomenclatural questions until we come to some conclusion whether they are to be accepted or rejected. At present our usage wavers. The A. O. U. rejects most of his names, on the ground that he was not a strict binomialist; yet it accepts the term *Aphelocoma floridana* for the Jay named *Corvus floridanus* by Bartram, Trav., p. 291. Let us at least be consistent, if we cannot be just! With regard to generic names, if Bartram was not very orthodox in binomiality, neither was Brisson, whose heterodoxy in this particular does not prevent us from adopting his genera; and the jewel of consistency requires us to treat both these authors alike. On p. 290bis of this book Bartram names the genus *Lucar*, with formal indication of its type species, *L. lividus*. This brings the case distinctly within our rules regarding generic names, whether properly 'characterized' or not, and disposes of the apparent objection that it is a *nomen nudum*. For this bird is of course the well-known Catbird, Bartram's specific name of which is the obvious origin of *Turdus lividus*, Wilson, 1810. Bartram's *lividus* is antedated by *carolinensis* Linn., 1766; but his *Lucar* antedates *Galeoscoptes* Cab., 1850. As the Catbird is now removed from the genus *Mimus*, its only tenable name would appear to be *Lucar carolinensis* Coues, Pr. Phila. Acad., 1875, p. 349. — ELLIOTT COUES, *Washington, D. C.*

Breeding of the Carolina Wren (*Thryothorus ludovicianus*) on Long Island, N. Y. — On the 20th of March, 1896, I heard a Carolina Wren in a swamp near my home in Roslyn, Queen's Co., N. Y. Knowing it to be rare on Long Island I decided to watch it as closely as possible, hoping it might have a mate.

The village of Roslyn is situated at the head of Hampstead Harbor, and is shut in by hills on three sides. There are three ponds in the village, a few hundred feet apart, with swamp land between, and being in a row, one above the other, they divide the village in two parts. Between the highest pond and the second one is a swamp three or four acres in

area, where I first heard the Wren, and where he stayed most of the time for several weeks. Every day I could hear his *pickin' cherries, pickin' cherries, pickin' cherries, pickin'*, or *teùkettle, tëùkettle, tëùkettle*, or *whèe-ha, whèe-ha, whèe-ha*, but the bird was very shy for a long time; in fact, till the nest was built. Starting from the swamp, he would make a complete circuit of the village every day, but apparently never left the valley.

Early in June I noticed that he seemed to stick to one locality most of the time, so I did a little exploring on his account, but could find no signs of a nest or a mate. The property on which the bird seemed to be located being occupied by people with whom I was not acquainted, I felt a little delicate about asking to go over the place more than once, so I asked Mr. Lewis H. West, who owns the place, to ask his tenants if they would not watch the Wren and try to find the nest. "Why, yes," they told him, "the birds have their nest in the roof of the well." This was about the 25th of June.

We found the nest in one corner of the roof of the well, about ten feet from the ground. The well is less than forty feet from the house, and is used daily. One of the birds left the nest when we went to see it, but stayed close by on a hemlock till we left.

I did not have a chance to visit the nest again till the 10th of July, when I found three young birds in the nest, well feathered. The mother bird was feeding them at the time, and was not at all shy, alighting on the lattice work around the well, with a small green worm in her bill, and waiting till we withdrew.

I did not keep track of the young birds after that, but heard the old ones nearly every day for a long time. On Nov. 3, I heard two calling to each other, one on the hill, one in the swamp. The last time I heard anything of them was Nov. 22.

There can be no possible doubt as to the identification of the bird, for Mr. West and I both were within six feet of them twice, and I have often watched them at short distances with a field-glass, while the song itself is a pretty safe guide with that bird.

I have good reason to believe that this is the first record of the actual breeding of the Carolina Wren on Long Island.—CHAS. E. CONKLIN, *Roslyn, Queen's Co., N. Y.*

A Remarkable Nest of the Tufted Titmouse (*Parus bicolor*).—On April 23, 1896, I noticed a Tufted Titmouse with its mouth full of building materials, and upon following it closely saw it fly into a very large mass of Spanish moss (*Tillandsia usneoides*). When it appeared again after depositing the nesting materials I was very much surprised to find that there was no hollow whatever where the moss was growing. It was followed by its mate, and made ten trips to the tree in less than fifteen minutes. Having had a good deal of experience with this species when nesting I knew it was characteristic of this bird to carry building materials to the nest even *after* the eggs were laid. I resolved to climb the tree

with assistance later in the day, but a violent rain storm prevented my doing so.

The next day, however, to my sorrow, I counted five eggs upon the ground and the nest completely blown out. Undismayed, she began work again in the same bunch of moss, but she was not encouraged at all by her mate, who would fly into a hollow near at hand and whistle for her, but she paid no attention to the hollow—just looked in and left. She worked rapidly and carried huge mouthfuls at every trip. Upon climbing to the nest on May 3 I found that it contained three eggs, and I left it for a full set. I was doomed to disappointment again, however, for the next day was very stormy, and upon visiting the tree I saw all the eggs on the ground and the nest, which was composed of dry leaves, hair, sedge, feathers and snake skins, was blown down in a mass. The fact of the Tufted Titmouse breeding in the Spanish moss is certainly a surprising departure for this bird.—ARTHUR T. WAYNE, *Mount Pleasant, South Carolina*.

The Whistled Call of *Parus atricapillus* common to both Sexes.—The well-known spring and summer call of the Chickadee, consisting of three clear whistles, is uttered by both sexes. I am not aware that record has ever been made of this fact, which I determined some time ago by the judicious use of firearms.—JONATHAN DWIGHT, JR., M. D., *New York City*.

***Passer domesticus* at Archer, Fla., and other Florida Notes.**—While collecting in Florida the past summer I killed a male *P. domesticus* at Archer on July 1. I can find no record of it having been recorded from this section before, and a number of persons to whom I showed the specimen said they had never seen one there before.

In sections of the State traveled over, where I have collected in previous years, I noticed a very perceptible falling off in the number of many of the large Waders. In Tampa Bay, however, I found the Roseate Spoonbill not uncommon, flocks of forty or fifty individuals being seen on two or three occasions, besides stragglers. I found them feeding in the boggy interiors of some of the mangrove islands and with a little caution was able to secure specimens.—T. GILBERT PEARSON, *Guilford College, N. C.*

Records of Two Birds rare on Long Island, N. Y.—*Contopus borealis*.—Giraud in his 'Birds of Long Island' makes no record of this species. Mr. William Dutcher in 'The Auk' (Vol. VI, p. 137), records the capture of the third specimen taken on Long Island (Aug. 11, 1888), two previous records having been made: one by Mr. N. T. Lawrence in 'Forest and Stream,' Vol. X, p. 235, and the other by Mr. DeL. Berier in 'Bull. Nutt. Orn. Club,' Vol. V, p. 46. A single specimen of *C. borealis* from Long Island is contained in the collection of the Long Island Historical Society.

This specimen was likewise recorded in 'The Auk' (Vol. X, p. 276), by Mr. Wm. Dutcher. I take pleasure in recording two additional specimens. Looking for fall migrants in the Parkville woods—now a part of Brooklyn—my attention was attracted by three or four birds, all apparently of the same species and evidently Flycatchers, in the tops of a scattered group of lofty old trees whose upper branches were dead and leafless. It at once occurred to me that these might be Olive-sided Flycatchers, though the extreme rarity of captures on Long Island was discouraging to the probability of a whole family presenting itself there at one time. In striking contrast to the familiar Kingbird, these birds were extremely shy. The least fearful of them was secured after some difficulty and proved to be a male Olive-sided Flycatcher of the year (date of capture, Aug. 29, 1896). September 1, three days later, in the same woods, a second specimen was taken. This bird was perched among the branches of a large tree which was in full foliage. This specimen was apparently alone, and exhibited none of the shyness which had made the previous capture difficult. This bird is also a male of the year, but measures longer by one half inch than the first.

Helmitherus vermivorus.—This Warbler is not a lover of Long Island's woods. Reaching the northern line of his breeding range at about this latitude, and evidently following regularly a route which does not cross Long Island, his occurrence here is doubtless an exception. A specimen of the Worm-eating Warbler of the year was secured within the present limits of Brooklyn on Sept. 16, 1896. This bird was feeding in company with other Warblers in a low shrubby growth within the borders of a wood. — WILLIAM C. BRAISLIN, *Brooklyn, N. Y.*

Unusual Visits of Birds in Western Massachusetts during 1896.—**Ammodramus sandwichensis savanna.**—A Savanna Sparrow was taken in Longmeadow the 8th of last February at a spot in the vicinity of which it had been repeatedly observed during the six preceding weeks. This is the first record of this species wintering near Springfield.

Agelaius phoeniceus.—Close to the same place a small flock of Red-winged Blackbirds stayed from December until March.

Ulula cinerea.—A Great Gray Owl was captured in Blandford, March 4. This is the third of the kind known to have been taken in this county.

Mimus polyglottos.—For a few days during the last part of May a Mockingbird was observed in Ludlow.

Corvus ossifragus.—On the 9th of June a Fish Crow was taken in Springfield. This bird has often been reported as having been seen here, but this is the only instance where its presence has been proved by conclusive evidence.

Uria lomvia.—Two Brunnich's Murres were taken at different points near Springfield on Dec. 19. A heavy gale had just previously prevailed on the coast. — ROBERT O. MORRIS, *Springfield, Mass.*

The Michigan Ornithological Club.—The annual meeting of the Michigan Ornithological Club was held at the home of the Librarian, Mr. L. J. Cole, in Grand Rapids, on the afternoon and evening of December 11. Important business was transacted in the afternoon, and the evening was devoted to the presentation and discussion of papers.

The reports of the officers of last year showed the Club to be in a prosperous and growing condition. The treasurer reported a balance in the treasury. Prof. A. J. Cook, Dr. J. B. Steere, Dr. Morris Gibbs, and Mr. A. B. Covert were elected Honorary Members. Mr. L. D. Watkins, Manchester, was elected to Active, and Mr. Henry Roth, Ludington, Mrs. S. W. Clarkson, Ann Arbor, Mr. Geo. Walker, Belvidere, Ill., and Mr. E. W. Durfee, Lordsburg, New Mexico, to Associate membership.

Realizing the need of bringing the scattered members of the Club more closely in touch with one another, it was decided to commence the publication of a quarterly bulletin containing accounts of the meetings and other things of interest to members. The editorial staff is made up as follows: Editor-in-chief, S. Whitney Watkins, Manchester; associates, W. A. Davidson, Detroit, T. G. Hankinson, Michigan Agricultural College, Morrison A. Wood, Ann Arbor, business managers, W. E. Mulliken and S. J. Cole, Grand Rapids.

The following officers were elected for the ensuing year: President, A. B. Durfee, Grand Rapids, re-elected; Vice-president, W. A. Davidson, Detroit; Secretary, L. J. Cole, Grand Rapids; Treasurer, Mrs. F. A. Kelsey, Grosse Ile; Librarian, B. R. Laraway, Grand Rapids; Program Committee, B. W. Swales, Detroit; L. C. Read, Grand Rapids; C. M. Ayres, Sault Ste. Marie; Collection Committee, Prof. C. A. Whittemore, Grand Rapids; Percy Selous, Greenville, and H. F. Jones, Grand Rapids. It was decided to hold the next annual meeting at Lansing.

Evening session.—The first article, 'Concerning the English Sparrow,' by Percy Selous, was read by Mr. Mulliken in the absence of the author. Mr. Selous upheld the foreigner, but the general verdict of the members was against the bird. Mr. T. L. Hankinson presented a paper entitled 'The Progress of Ornithology in Michigan.' Mr. Hankinson began with the list of Sager in 1839 and carried the subject up to the list of A. J. Cook and the organization of the Michigan Ornithological Club. Mr. L. Whitney Watkins of Manchester next read an article on 'Bird Migration,' drawing some interesting conclusions from the reports collected by the Migration Committee during the past year. Mr. Mulliken read a very interesting paper entitled 'The Limicolæ of Ottawa County, Michigan.' Mr. Mulliken gave copious notes on the habits of twelve species, based on personal observation.

The concluding article of the program, 'History of Baird's Sandpiper in Michigan,' was read by Mr. Cole. He gave an account of the taking of this bird in Michigan, and enumerated ten specimens known to have been taken in the State.

All were well pleased with the progress made and the work done by the Club in the past year and look forward to even better success in the future.
— LEON J. COLE, *Secretary*.

Errata.—As I was not able to read the proof of my article on the 'Birds of the Coal Regions of Pennsylvania' (Auk, Oct., 1896), on account of absence from the city, two errors have unfortunately occurred. *Turdus fuscescens*, not *Turdus aonalaschkæ pallasi*, was noted by me at Pottsville and Rock Glen.

I noted Cowbirds at Pottsville on July 14, not July 11.—R. T. YOUNG, *Philadelphia, Pa.*

RECENT LITERATURE.

Sharpe's Catalogue of the Limicolæ.¹—As Dr. Sharpe says, the collection of Limicolæ in the British Museum "is truly a wonderful one. Of the 255 species recorded, the British Museum contains 250, and the types are 68 in number." "The specimens arranged and catalogued in it are 13,440, exclusive of many hundreds of duplicates." It is hence easily seen that the labor of preparing the present volume was very great, with, however, commensurate facilities for arriving at satisfactory results.

The Limicolæ are divided into the following six families,—Ædicnemidæ, with 4 genera and 11 species; Cursoriidae, with 8 genera and 37 species; Parridae, with 7 genera and 11 species; Charadriidae, with 76 genera (44 of them monotypic) and 192 species; Chionidae, with 2 genera and 3 species; and Thinocorythidae, with 2 genera and 5 species. The family Charadriidae includes 10 subfamilies, most of which have been often if not generally accorded the rank of families; as, for example, Arenariinae, Hæmatopodinae, Charadriinae, Himantopodinae, Scolopacinae, Phalaropodinae, etc.; while the genus *Aphriza*, sometimes recognized as a family, is not only reduced to generic rank, but is placed between *Ochthodromus* and *Charadrius*. While Sharpe thus degrades the rank of many groups usually recognized as families, he goes to the opposite ex-

¹ Catalogue | of the | Limicolæ | in the | Collection | of the | British Museum. | By | R. Bowdler Sharpe. | London: | Printed by order of the Trustees. | Sold by | Longmans & Co., 39 Paternoster Row; | B. Quaritch, 15 Piccadilly; Dulau & Co., 37 Soho Square W.; | Kegan Paul & Co., Paternoster House, Charing Cross Road; and at the | British Museum (Natural History), Cromwell Road, S. W. | 1896.—8vo, pp. xii + 794, pl. vii. = Catalogue of the Birds in the British Museum, Vol. XXIV.

treme in his treatment of genera, of which he here not only creates some eight or nine new ones, but elevates to generic rank a very large number of groups heretofore commonly treated as merely subgenera or else wholly ignored.

As regards matters of nomenclature, we of course expect the continuation of the confusion which results from taking the XIIth instead of the Xth edition of Linnæus's 'Systema Naturæ' as the starting-point for the law of priority, in opposition to the views of nearly all zoölogists except Sharpe and a few of his British confrères. But we can hardly understand why, after accepting *Jacana* as rightfully superceding *Parra*, he should continue to call the family Parridæ, in contravention even of the British Association Code. The genus *Asarcia* is proposed for *Jacana spinosa* (Linn., 1758), and the specific name *variabilis* (Linn., 1766) is adopted for the species. The generic name *Hydrophasianus* is replaced by the new term *Hydrophasis*, without any word of explanation or apparent reason.

Among the Charadriidæ proper, full generic rank is given to *Oxyechus*, *Ochthodromus*, *Ægialeus*, and *Podasocys*, as well as to *Squatarola*. Among the Tringæ we have as full genera *Helodromas*, *Limonites*, *Heteropygia*, *Arquatella*, *Ancylochilus*, *Pelidna*, *Rhyacophilus*, etc., while *Tringoides* takes the place of *Actitis*. As regards the status of species and subspecies which enter the North American fauna, *Charadrius dominicus fulvus* is considered not entitled to recognition; *Macrorhamphus scolopaceus*, *Ereunetes occidentalis*, and *Symphemia semipalmata inornata*, are also relegated to synonymy, *Totanus solitarius cinnamomeus* Brewster, omitted from the body of the work, is added in the Appendix, where it is given the rank of a full species, but in the Systematic Index it stands as a subspecies.

If we may judge from Mr. Sharpe's remarks on these and other similar cases, he seems to be as far as ever from grasping the idea underlying subspecies, now so well understood by many of his British and continental fellow workers.

Respecting *Ægialitis meloda circumcincta*, Mr. Sharpe sees no reason for considering it otherwise than as merely very old birds of *Æ. meloda*. *Tringa conesi* and *T. ptilocnemis* are both made subspecies of *A. maritima*, in the text, but in the Systematic Index *T. ptilocnemis* is enumerated as a full species. *Tringa (Pelidna) americana* (Cass.) (= *pacifica* Coues) stands as a full species, under Cassin's name, although the name *americana* Cassin (1858) is preoccupied by a *Tringa americana* Brehm (1855) applied to another species.

In the matter of specific names of North American birds, we have *Limosa hudsonica* instead of *L. hæmastica*, and *Phalaropus hyperboreus* in place of *P. lobatus*, on the basis of the XIIth vs. the Xth edition of Linnæus. In respect to the latter, he says the name *lobatus* "is taken from the tenth (1758) edition of the 'Systema Naturæ,' and it is also the *Tringa lobata* of the twelfth edition. Here, however, is given the name

of *Tringa hyperborea*, which, in my opinion, it is wise to adopt, as the name of *lobatus* has been applied to the Grey Phalaropes so often, that even at the present day its adoption seems certain to create confusion." To show how little there is in this plea, it may be stated that, according to Mr. Sharpe's citations, the name *lobatus* was applied just 8 times in the century 1771-1871, deducting for one reference (to Blyth, pp. 694 and 695) given twice, and for one reference (to Treat) which belongs to '*hyperboreus*'!

The bibliographical citations are very extended, under some species occupying from three to five pages. In fact, we are told in the Introduction that "The references quoted in the synonymy are 18,892. With the exception of a few books, which proved to be inaccessible, the whole mass of this literature has been actually consulted." The labor here involved no one can appreciate who has not engaged extensively in bibliographical work. It is doubtless well done, and as free from errors and transpositions as such work usually is. We miss, however, references to some publications that must have been accessible; for example, the earlier volumes of the 'Bulletin' of the American Museum of Natural History are cited but the later ones are not; and so with other works that might be mentioned, which are either quite overlooked or cited irregularly. The earlier volumes of the 'Bulletin' of the Museum of Comparative Zoölogy at Cambridge are cited as "Bull. Harv. Coll.," while later volumes are given correctly. As there is no such scientific publication as 'Bull. Harv. Coll.' there might be some trouble if one not conversant with the case should attempt to verify such references.

With all this apparently ungrateful fault-finding, we share the sense of profound indebtedness all ornithologists must feel toward Dr. Sharpe for the great boon conferred by his work on the Limicolæ, and appreciate most heartily the vast amount of drudgery it must have cost, as well as the skill and efficiency displayed in its preparation.—J. A. A.

Bendire's 'Life Histories of North American Birds.'¹—This forms, in order of appearance, Part II of the author's great work on 'The Life Histories of North American Birds', but through lack of foresight on the part of the proper authorities in such matters, we are left without any convenient method of notation to distinguish the present part of this

¹ Smithsonian Institution. | United States National Museum. | Special Bulletin. | — | Life Histories | of | North American Birds, | from the Parrots to the Grackles, | with special reference to | their Breeding Habits and Eggs, | by | Charles Bendire, Captain and Brevet Major, U. S. A. (retired). | Honorary Curator of the Department of Oölogy, U. S. National Museum, | Member of the American Ornithologists' Union. | With | Seven Lithographic Plates. | — | Washington: | Government Printing Office. | 1895 [= Oct. 1, 1896].—4to, pp. i-ix, 1-518, col. pl. i-vii, each with explanatory leaf.

monumental series from its predecessor.¹ Besides this, the work bears the date of printing and not of publication, it having been printed, or at least electrotyped, for more than a year before the Government Printing Office found it convenient to make the work accessible to the public.

The high praise bestowed upon the first part of the 'Life Histories' (Auk, IX, 1892, p. 375), issued in 1892, is equally well deserved in respect to the present volume. Indeed, the high standard set at the beginning, both as to the text and the plates, is now, if possible, surpassed. For faithful, painstaking, conscientious work, these volumes are a model that may well be followed in similar fields. The method of treatment is similar to that of the first part, already described (*l. c.*). Its special feature is the large amount of original information conveyed, either from the rich fund of the author's own experience or solicited from trustworthy correspondents for use in the present connection. As before, extraneous and thread-worn matter is excluded, a fresh harvest being given in its place. Also, as before, the plates are above criticism, and have as yet never been equalled in artistic effect or in faithfulness of execution. The amount of work entailed in the preparation of such a volume is not easily appreciated, without experience in similar lines.

The birds treated in the present volume comprise the Carolina Paroquet, the Cuckoos and Anis, one species of Trogon, three of Kingfishers, 36 kinds of Woodpeckers, 11 Goatsuckers, 4 Swifts, 18 Hummingbirds, 1 Becard, 39 Flycatchers, 13 Larks, 31 Crows, Jays and Magpies, 1 Starling and 29 Blackbirds and Orioles—197 in all. This of course includes subspecies as well as species. The seven colored plates contain an aggregate of 196 figures, all natural size, drawn by Mr. John L. Ridgway, while the chromo-lithographic reproductions are by the Ketterlinus Printing Company of Philadelphia. In species that lay white eggs, like the Hummingbirds, Swifts and Woodpeckers, only a few figures are given for each group, but in birds laying colored eggs, with more or less characteristic markings, nearly every species is figured, often two or more eggs of the same species being given to show diversity of marking in eggs of the same species.

In the text we have not only descriptions of the eggs and nests, and an account of the general habits of the birds, but special attention is given to the distribution and breeding ranges of the species. Unlike most oölogical writers, Captain Bendire gives careful attention to the technical points that distinguish species and subspecies, of which there is ample internal evidence in the volume before us. Doubtful points respecting alleged distribution are worked out, wherever possible, by direct recourse to the immense collection of bird skins in the National Museum, and questions of relationship between closely allied forms are discussed with

¹ In the 'Advertisement' it is referred to in parenthesis as 'Special Bulletin No. 3.'

the intelligence of an expert ornithologist, as witness the case, among others, of the Florida Meadowlark.

It is to be hoped that the author will be blessed with health and further opportunities for the completion of the grand work he has so successfully undertaken and already carried so far.—J. A. A.

Bird-Nesting with a Camera.¹—The prospectus accompanying this sumptuous work tells us that the edition will be limited to 300 copies of 18 to 20 parts, each part to contain ten plates, with descriptions of the habits of the species, and a more special history of the nests illustrated. Material has already been collected for the first thirteen parts, which will be issued at intervals of four to six weeks, and with the exception of "one or two" of the rarer species the author expects to present a complete series of the nests of British birds photographed *in situ*. If he succeeds in his undertaking, and in the remaining parts of his work maintains the standard of excellence reached by Part I, he will have made an unparalleled contribution to ornithology.

Only those who have tried it know how much patience and ingenuity is required to obtain satisfactory photographs of birds' nests, and only those who have had experience with publishers know how difficult it is to secure a proper reproduction of the photograph after it is made. In both tasks Mr. Lee has achieved unqualified success. The ten photogravures included in Part I of his work, whether viewed from the standpoint of the photographer or reproducer, are above criticism, while neither pen nor pencil could so graphically illustrate the nesting haunts of the species they represent.

The text presents a general account of the species as a British bird, and very wisely, a particular account of the nest figured, with interesting incidents concerning the making of the photograph.—F. M. C.

Thompson's Art Anatomy.²—This admirable work is an outcome of the author's training both as a naturalist and artist. It goes without saying that no anatomist could alone have produced the series of beautiful plates

¹ Among British Birds in their Nesting Haunts. Illustrated by the Camera. By Oswin A. J. Lee. Part I. Edinburgh. David Douglas. Folio, pp. 39, pll. x. (Price 10s. 6d. per part to subscribers only.)

² Studies in the Art Anatomy of Animals | Being a Brief Analysis of the Visible Forms of the more | Familiar Mammals and Birds. Designed for the | Use of Sculptors, Painters, Illustrators, | Naturalists, and Taxidermists. | By | Ernest E. Seton Thompson | Naturalist to the government of Manitoba; Author of "The Birds of Manitoba," "The Mammals of Manitoba," | "The King of Currumpaw," *Exposant au Salon*. | Illustrated with One Hundred Drawings by the Author | London | Macmillan and Co., Ltd. | New York: The Macmillan Co. | 1896.—Folio, pp. viii + 87; pll. xlix.

with which Mr. Thompson illustrates his theme and proves his thesis; and it is equally true that no artist could have drawn them without a knowledge of the anatomical details upon which they are based. Mr. Thompson's plea is for scientific exactness as well as for artistic excellence. He rightly claims that no result can be correct which is fundamentally wrong, and he presents his fellow artists with a series of original studies of the visible form of mammals and birds as it is governed by bones and muscles, tendons, veins and nerves, hair, feathers, which they will do well to consider.

We are here concerned only with that part of the work relating to birds. Plates are given illustrating the pterylosis of a typical passerine bird (*Passer domesticus*), a Kestrel (*Falco alaudarius*), and a Quail (*Coturnix communis*). Special attention is paid to the intricate arrangement of the feathers of the wing, and to the effect produced by the feathers of certain pteryllæ when in proper position. This is further shown by a remarkable drawing of the Peacock's spread train, which, when in good condition, is found to present a perfect half circle, the ocelli being bisected by the radii and equidistant concentric circles.

Mr. Thompson has rendered a service to science and to art for which all lovers of truth and beauty cannot be too grateful.—F. M. C.

Miss Merriam's 'A-Birding on a Bronco'.¹—'A-Birding on a Bronco' consists of a series of nineteen chapters or studies, mostly here printed for the first time, illustrated with numerous 'half-tones' from photographs of some of the scenes described and by spirited drawings of birds and birds' nests by Mr. Fuertes. The scene of Miss Merriam's studies is the vicinity of Twin Oaks, in southern California, "thirty-four miles north of San Diego, and twelve miles from the Pacific," where parts of two summers were spent a-field with the birds. About sixty species are referred to at greater or less length, while a score or more are made the subject of special study. Some twenty pages are devoted to 'The Little Lover,' in other words, the Western House Wren, and as many more to the Western Gnatcatcher. The chief characters of another chapter are some young California Woodpeckers, while Bush-tits, Orioles, Chewinks, Humming-birds, the Valley Quail, the Road-runner, and others come in for a liberal share of attention. Miss Merriam is a sympathetic as well as a keen observer of birds in their native haunts, and relates in minute detail the vicissitudes of bird-life as seen in her numerous excursions to their favorite haunts. As may be inferred from the title of the book, two trusty broncos—one during the season of 1889 and the other in 1894—afforded her not only means of easy travel during her daily excursions but also pleasant

¹ A-Birding on a Bronco | By Miss Florence A. Merriam | . . . [= Motto, 3 lines] | Illustrated | [Vignette] | Boston and New York | Houghton, Mifflin and Company | The Riverside Press, Cambridge | 1896.—16mo, pp. x + 227. (Price \$1.25.)

companionship. While Mrs. Miller and other well known writers have made us familiar with the domestic trials and housekeeping methods of many of our eastern birds, Miss Merriam here enters a new field, and tells us in a charming way of the nest-building and brood-rearing ways of a score or more of interesting types of western bird-life. The work is of course non-technical, as it should be, being a popular contribution to bird-lore, yet, abounds with interesting observations of permanent value. — J. A. A.

'Papers presented to the World's Congress of Ornithology.'¹ — From the 'Publisher's note,' we learn that the few weeks intervening between the appointment of the Committee of the World's Congress of Ornithology (see Auk, X, 1893, 386) and the session of the Congress, did not enable the Committee to do all it wished to secure the co-operation of ornithologists living at a distance from Chicago, "but they had reason to be much gratified at the measure of success attained, as witnessed by the large and interested audiences which attended every session, and the many papers which were read in person or by proxy." The Congress was held Oct. 18-21, 1893, the sessions occupying four days.

This Congress differed from other World's Congresses of Ornithology that have been held in that it was not, and was not intended to be, to any large extent a scientific congress; the subject of Ornithology being approached mainly from its economic, æsthetic, and humanitarian sides. Indeed, the motto chosen to grace the titlepage — "Birds must and shall be protected" — is the key-note to the volume. Of the 27 papers contained in the work, not one can be considered as technical; all are written in a popular vein, and nearly all, from the 'Presidential Address,' by Dr. Coues, to almost the last paper in the volume, approach the subject of birds from the side of the humanitarian. Many of the papers are charmingly written, and there is less repetition and less of the commonplace than the nature of the subject would naturally lead one to expect. The papers here gathered are well worthy of the permanency now secured for them, and of their attractive typographical setting. Their perusal should tend not only to stimulate interest in bird protection, but in the popular study of birds for the pleasure it brings. The list of contributors includes a number of well known ornithologists, as well as many popular writers of distinction on ornithological subjects. The edition is limited to 600 numbered copies. — J. A. A.

¹Papers | presented to the | World's Congress | on | Ornithology | Edited by
| Mrs. E. Irene Rood | Chairman Woman's Committee of the Congress |
under the direction of | Dr. Elliott Coues | President of the Congress, Ex-
President of the American Ornithologist's Union. | — "Birds must and shall be
protected." | — | Chicago | Charles H. Sergel Company | 1896.—8vo, pp. 208.
(Price, \$5.00, net.)

The Revised New Nuttall.—The second edition of the Nuttall-Chamberlain 'Manual,' recently issued,¹ comes to us under a modified title, properly indicating the scope of the work.² It is also embellished with twenty chromolithographic plates, giving figures of about 110 species. In the case of the majority of the species, they are sufficiently truthful in coloring to be of material service to the inexperienced student of birds; in the other cases they are very good reproductions of very poor originals.

The text, of course, is mainly as in the first edition, being printed from the same electrotypes plates, but many important corrections have been made, here and there, in the parts by Mr. Chamberlain, through which means the work is more nearly 'brought down to date,' and much improved. This is noticeable especially in the matter relating to the subject of geographical distribution; but if one were disposed to be critical, various desirable improvements, overlooked in the present revision, might be pointed out.

The preface to the first edition, or what purports to be such, is retained, but comparison of it with the preface to the first edition shows that 19 lines in pp. vi and vii have been expunged and replaced by 21 lines of new matter, of quite different import and much more creditable to the taste of the editor. Yet the preface, thus materially altered, still bears date "September, 1891." This, to say the least, is an idiosyncrasy in book-making we do not remember to have before seen.

This revised edition of the Nuttall-Chamberlain 'Manual,' with its amended title and important correction in the text, and the added helpful colored illustrations, is well deserving of generous patronage, as a 'Popular Handbook of the Ornithology of Eastern North America.'—J. A. A.

Millais on Change to Spring Plumage without a Moul.³—The intent of this paper is to show that in acquiring their summer plumage certain species of water-birds undergo not a moult but a recoloration and restoration of the old feathers of the winter dress. The Sanderling (*Calidris arenaria*) is taken as a typical example of this change, and feathers

¹ A Popular Handbook | of the | Ornithology | of | Eastern North America. | By | Thomas Nuttall. | Second revised and annotated edition | By Montague Chamberlain. | With Additions | and One Hundred and Ten Illustrations in Colors. | [Cut of Hummingbird] Vol. I | The Land Birds. | [Vol. II. Game and Water Birds.] | Boston: | Little, Brown, and Company. | 1896. — 2 vols, crown 8vo. Vol. I, pp. i-liv, 1-473; Vol. II, pp. i-vii, 1-431, col. pll. i-xx, and 172 illustrations in the text.

² For notice of the first edition, see Auk, IX, 1892, pp. 59-61.

³ On the Change of Birds to Spring Plumage without a Moul. By John Guille Millais. Ibis, 7th ser., Vol. II, Oct. 1896, pp. 451-457, pl. x.

plucked from this species at various dates form a series depicted in a colored plate, which purports to show a color change without moult. It so happens, however, that Mr. Chapman has also studied the Sanderling (Bull. Am. Mus. Nat. Hist., VIII, 1896, pp. 1-8) and states that the change is due to a moult. That all who read may each judge for himself which of the two writers has the best claim to credence, I make use of the 'deadly parallel column,' italicizing the important features. Mr. Millais's remarks are given in the first column, Mr. Chapman's in the second.

MR. MILLAIS.

"Illustrations are given (Plate X, figs. 8-12) showing the *gradual change* of a feather from the back of the neck *during the period extending from March to August*.

"... Mr. Allen's chief argument seems to be that a feather once completed is dead and retains no further power of transmitting color through the quill from the epidermis. Now if this were the case how is it that we find a feather like that of figs. 9, 10 and 11—feathers which are to be found in the plumage of the bird during successive months? According to Mr. Allen the bird would have to renew its feathers every month which is a manifest impossibility. As there can be no reasonable doubt that the same feather goes through the changes exhibited in figs. 9-12 (*because there is no moult during that period*), and as we have the proof of all intermediate changes of the feathers taking place, there seems equally little reason to doubt that fig. 8 passes into fig. 9, for here again we have the transition shown. We know that many of the small perching birds assume their summer plumage by means of the gray edgings of the feathers wearing off; *I do not, however, think that this takes place*

MR. CHAPMAN.

"This brings us to the change from winter to breeding plumage, which Herr Gätke, as already described, asserts is accomplished without moult.

"My series of twenty specimens illustrating *this change* show that it *begins late in March* or during the first half of April *and is completed in May*. They show, furthermore, that *it is accomplished by a molt*. In proof of this statement I will describe several of these molting birds. No. 3685 (Coll. Geo. B. Sennett, Corpus Christi, Texas, March 28, 1886) is to all outward appearances in the winter plumage of the adult, but examination shows that *the molt is in active progress over the entire body*, in the scapulars, tertials, all but the greater series of wing-coverts, the upper and under tail-coverts. . . . Am. Mus. No. 45485 (California, April 13, Xantus) closely resembles the preceding . . . No. 6042 (Coll. Geo. B. Sennett, Corpus Christi, Texas, April 20, 1889, Singley) is slightly more advanced than either of the birds just described. *New feathers are appearing not only over the whole body*, tertials, lesser and median wing-coverts, but the molt extends to the outer pair of tail-feathers,

in the case of the *Sanderling*, in the change from fig. 10 to fig. 11, but that it is the colouring matter moving down the feather and obliterating the white. After this change, *I think* that the edge of the feather then wears away in an appreciable degree, causing its form to be altered as seen in fig. 12.

"To sum up, so far I see no reason whatever to differ from the opinion of many of our own naturalists, and *I maintain that Herr Gätke's solution of the Spring change of the Dunlin and the Sanderling is perfectly correct as regards an actual influx of pigment through the old feather*, whilst Mr. Frank M. Chapman's observations on these two birds in the same journal as Mr. Allen's require modification. We know well that new feathers come in place of the few that are cast, but that is no evidence that the whole bird undergoes a moult of all except the rectrices and remiges."

which with the median pair are about half grown. Only seven of the twelve old tail-feathers remain, and it seems probable that all the rectrices are renewed. Am. Mus. No. 60007 (Micco, Florida, April 30, 1891; C. S. Allen) has nearly completed the molt, though new feathers are still appearing all over the body. The rectrices, tertials and lesser and median wing-coverts have apparently been renewed. Nearly all the newly-grown or growing feathers of the upper parts are broadly tipped with ashy gray, which, as *numerous specimens show, is later worn off*, leaving the black and rufous of the full breeding plumage. It is evidently unnecessary to describe *other specimens* in this series which *show the molt in every stage*, and prove beyond question the manner in which the change from winter to summer plumage is accomplished."

Comment seems quite unnecessary, and such evidence as Mr. Chapman's can hardly be set aside as needing "modification" by so uncompromisingly biased a writer as Mr. Millais. The balance of his article need not occupy us seriously, for he states no facts which are not admitted by everybody, and figures no feathers which new growth could not have produced. He even admits that some of the feathers *are* of new growth, but clings to the old idea of color change in others adjacent. He finds a moult in *Harelda glacialis*, a winter resident, and only slight evidences of one in the transient migrants, *Podiceps auritus* and *Calidris arenaria*. The fact, that most birds largely complete their moult *before* migrating seems to have been quite overlooked in explaining these differences. In fact, the superficial views of the sportsman rather than the deductions of a careful ornithologist pervade the article, which smacks strongly of the very dogmatism the author so deprecates in others.—J. D., Jr.

Wintle's 'Birds of Montreal'.¹—The work opens with a descriptive and historical preface of twelve pages, followed by (pp. 1-135) a copiously annotated list of 254 species, arranged in accordance with the classification and nomenclature of the A. O. U. Check List, the names of the higher groups being included. The character of the 'List' is sufficiently indicated by the descriptive portion of the title page, already transcribed in the accompanying footnote. This is succeeded by what is properly part two of the book, containing "Abridged Descriptions of the Birds of Montreal, specially given for the purpose of identification for persons not familiar with their general appearance," occupying pp. 137-214, the existence of which excellent feature the title page gives no intimation. These descriptions consist of about five to ten lines each, and for the most part give very well the distinctive features of the species. This is succeeded by a very full index of vernacular names (pp. 215-227), and by still a third part, also not indicated on the title page. This has an embellished title page of its own as an 'inset,' with the title, "Original Sporting Sketches, compiled by David Rennie, 1895." It is paged continuously with the rest of the book (forming pp. 220-281), but is set in smaller type. The book appears to well meet the needs of a local, popular hand book. It is well printed in rather large type, on good paper, and typographically presents an attractive appearance. It is somewhat marred by the printer's eccentricities of punctuation in connection with the technical names, but typographical errors are not numerous.—J. A. A.

Oberholser's Birds of Wayne County, Ohio.²—The list proper includes 183 species, and is followed by a 'Hypothetical List' of 82 species, which

¹ The | Birds of Montreal | By | Ernest D. Wintle, | "Associate Member of the American Ornithologists Union." | Birds observed in the vicinity of Montreal, Province of Quebec, | Dominion of Canada, with annotations as to whether they | are "Permanent Residents," or those that are found | regularly throughout the year; "Winter Visitants," | or those that occur only during the winter season, | passing north in the spring; "Transient Visitants," or those that occur only | during migrations in spring and | autumn; "Summer Residents," | or those that are known to | breed, but which depart southward before winter; and "Accidental Visitants," or strag- | glers from remote districts; giving | their relative abundance as to whether | they are *rare*, *scarce*, *common* or *abundant*; | data of *nests* and *eggs* when found, and especially | noting the species that breed in the *City* and *Mount* | *Royal Park*; also data of migratory arrivals and de- | partures, and other notes, all of which are deduced | from original observations made during the past fifteen years. | — | Montreal: | W. Drysdale & Co. | — | 1896.—8vo., pp. xiv + 181, with an outline map and several plates.

² A Preliminary List of the Birds of Wayne County, Ohio. By Harry C. Oberholser. Bull. of the Ohio Agricultural Experiment Station. Technical Series, Vol. I, Number 4, July, 1896, Art. xxiv, pp. 243-354.

includes species of probable occurrence in the region, but not as yet positively known to the writer to have been found there. As most of them are natural to the region, the conservatism here shown is the more commendable. As said in the 'Introduction': "That the present paper may serve as a basis for future observations is the chief excuse for its existence. With this purpose in view much care has been exercised to avoid the inclusion of any but perfectly reliable records. All but four species have been personally identified by the writer, either in the field or from specimens in local collections; and these four exceptions have been admitted only upon what has been considered satisfactory evidence of their occurrence." The paper is based mainly on observations made by the writer between February 8, 1890 and April 9, 1894. Of the 183 species noted, 30 are classified as permanent residents, 61 as summer residents, and 57 as transient visitors, and these latter are further subdivided in accordance with their manner of occurrence. The annotations are often quite extended, relating to the nesting habits of the species as well as to their relative abundance and seasons of occurrence. The nomenclature is that of the A. O. U. Check-List, and includes the names of the higher groups as well as those of the species. Also various familiar text illustrations are introduced.—J. A. A.

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NOTES AND NEWS.

MR. HOWARD GARDNER NICHOLS, an Associate Member of the A. O. U., and for a number of years a Resident Member of the Nuttall Ornithological Club, died June 23, 1896, at the early age of 25 years, at Atlanta, Georgia, from injuries received several weeks before by the fall of a piece of machinery in a cotton mill at Alabama City, Alabama. He was a graduate of Harvard in the class of 1893. After graduation he went into the business of cotton manufacturing, and at the time of his death was the manager of a large plant for the weaving of cotton at Alabama City. He was very successful in this undertaking, and had every prospect of a brilliant future. What leisure time he had was largely devoted to the study of birds, and the same zeal and earnestness which he carried into all his work promised much of value as the result of his investigations of the little-known fauna of the region in which he was situated. At the time of his death he was mayor of Alabama City, where his death was mourned as an irreparable public loss, and where he was honored and respected for "his sterling worth, strict integrity, and noble charity."

THE ACTION on the Amendments to the By-Laws of the A. O. U. proposed at the Thirteenth Congress, and referred to the Fourteenth Congress, resulted as follows: The first and third proposed changes were not adopted, but the proposed addition of the words "together with the Ex-Presidents" to the second amendment was adopted. The first paragraph of Article II, Section I, as amended, reads as follows:—

"Article II, Section I. The Officers of the Union shall be a President, two Vice-Presidents, a Secretary, a Treasurer, and seven Councillors. These Officers, together with the Ex-Presidents, shall constitute the Board of Management or Council of the Union, for the transaction of such business as may be assigned to it by the By-Laws or by the Union."

THE ornithological collection formed by the late Dr. William Wood, of East Windsor Hill, Conn., has been presented by his widow and children to the Hartford (Conn.) Scientific Society, and will soon be placed on exhibition in the rooms of the Society. The collection is mostly mounted, and contains many excellent specimens of the rapacious birds found in Connecticut.

DAVID DOUGLAS, Edinburgh, has issued a prospectus of 'A History of Fowling, being an account of the many curious devices by which Wild Birds are or have been captured in different parts of the World,' by the Rev. H. A. Macpherson. It will form a quarto volume of about 450

pages, with numerous illustrations in the text. As a "considerable amount of antiquarian lore" is interwoven with the general narrative, the book is likely to interest other readers besides ornithologists. Subscription price, 21s.

As we go to press we are in receipt of Part XVI—the last and concluding part—of Mr. H. Nehrling's excellent 'North American Birds,' with plates xxxv and xxxvi, pp. 337 to 452, and index and title pages. The work forms two large quarto volumes, beautifully printed, and illustrated with thirty-six colored plates.

IN 'SCIENCE' for Jan. 1, 1897 (N. S. Vol. V, p. 26), is a short communication from H. Helm Clayton, of the Blue Hill Meteorological Observatory, Readville, Mass., on 'The Velocity of a Flight of Ducks obtained by Triangulation.' From observations made with specially constructed theodolites, used in determining the heights and velocities of clouds, Mr. S. P. Fergusson and the writer of the article in question succeeded in obtaining measurements of the height and velocity of flight of a flock of Ducks which crossed their field of observation on the morning of December 8, 1896. The height of the Ducks was 958 feet, and the rate of flight 47.8 miles per hour. This record is of special interest, there being as yet so few trustworthy observations of the velocity of flight of birds.

THE A. O. U. Committee on Protection of North American Birds has increased its membership with a view to more effective work, and is at present constituted as follows:

WILLIAM DUTCHER, *Chairman*, 525 Manhattan Ave., New York, N. Y.

GEORGE H. MACKAY, 218 Commonwealth Ave., Boston, Mass.

E. H. FORBUSH, Ornithologist State Board of Agriculture, Malden, Mass.

MRS. OLIVE THORNE MILLER, 628 Hancock St., Brooklyn, N. Y.

WITMER STONE, Academy of Natural Sciences, Philadelphia, Pa.

MRS. JULIA STOCKTON ROBINS, 114 So. 21st St., Philadelphia, Pa.

MISS FLORENCE A. MERRIAM, 1919 16th St., N. W., Washington, D. C.

DR. T. S. PALMER, Biological Survey, U. S. Department of Agriculture, Washington, D. C.

RUTHVEN DEANE, 24 Michigan Ave., Chicago, Ill.

O. WIDMANN, Old Orchard, Mo.

MRS. E. IRENE ROOD, Fort Worth, Texas.

LEVERETT M. LOOMIS, Academy of Sciences, San Francisco, Cal.

A. W. ANTHONY, 1929 Front St., San Diego, Cal.

A large edition of the Annual Report of the Committee for 1896 has been published for free distribution. The Committee will gladly receive the co-operation of individuals, Committees or Societies interested in the better protection of our native birds.

EIGHTH SUPPLEMENT TO THE AMERICAN ORNITHOLOGISTS' UNION CHECK-LIST OF
NORTH AMERICAN BIRDS.

TWO YEARS have elapsed since the publication of the Seventh Supplement to the A. O. U. Check-List of North American Birds, during which period the Committee on Classification and Nomenclature has held three sessions,—one in Cambridge and two in Washington. Five of the decisions reached by the Committee at its first Washington meeting were incorporated in the second edition of the Check-List, published in December, 1895. These are included below with the others, and are distinguished by an asterisk prefixed to the marginal number of the species. In the subjoined list are included all of the cases published in 'The Auk' for January, 1897, they having come before the Committee at its last session, in proof sheets of this number of 'The Auk'.

As heretofore, the numbers at the left of the scientific names facilitate collation with the Check-List. The interpolated species and subspecies are numbered in accordance with the provision made therefor in the Code of Nomenclature (p. 14, last paragraph).

Committee	{	WILLIAM BREWSTER, <i>Chairman</i> .
		J. A. ALLEN.
		ELLIOTT COUES.
		C. HART MERRIAM.
		ROBERT RIDGWAY.

I. ADDITIONS.

108.1. *Oceanodroma socorroensis* TOWNSEND.*Socorro Petrel.*

Oceanodroma socorroensis TOWNSEND, Proc. U. S. Nat. Mus.
XIII, 1890, 134.

[B—, C—, R—, C—.]

GEOG. DIST.—Islands off west coast of Mexico, north to San Diego, Cal. (Cf. ANTHONY, Auk, XIII, Oct. 1895, 387.)

GENUS **MERGUS** LINNÆUS.

Mergus LINN. S. N. ed. 10, 1758, 129. Type, by elimination, *Mergus albellus* LINN.

[131.1.] **Mergus albellus** LINN.

Smew.

Mergus albellus LINN. S. N. ed. 10, 1758, 129.

[B 614, C—, R—, C—.]

GEOG. DIST.—In summer, northern Europe and Asia; in winter, south to the Mediterranean, northern India, China and Japan. Accidental in northern North America. (Cf. SALVADORI, Cat. Bds. Br. Mus. XXVII, 1896, 467, 468.)

GENUS **CASARCA** BONAPARTE.

Casarca BON. Geogr. & Comp. List, 1838, 56. Type, *Anas rutila* PALL. = *Anis casarca* LINN.

[141.1.] **Casarca casarca** (LINN.).

Ruddy Sheldrake.

Anas casarca LINN. S. N. ed. 12, III, App. 1768, 224.

Casarca casarca ALLEN, Auk, XIII, 1896, 164, 243.

[B—, C—, R—, C—.]

GEOG. DIST.—Southern Europe and southern Asia, south to northern Africa. Accidental in Greenland, Iceland, and the Scandinavian Peninsula. (Cf. ALLEN, Auk, *l. c.*)

[171.1.] **Anser fabalis** (LATH.).

Bean Goose.

Anas fabalis LATH. Gen. Syn. Suppl. I, 1787, 297.

Anser fabalis SALVAD. Cat. Bds. Brit. Mus. XXVII, 1895, 99.

[B—, C—, R—, C—.]

GEOG. DIST.—Northern Asia, eastward into northern Europe; in winter south to southern Europe and northern Africa. Accidental in Greenland. (Cf. SALVADORI, *l. c.*)

201c. ***Ardea virescens anthonyi* MEARNs.**

Anthony's Green Heron.

Ardea virescens anthonyi MEARNs, Auk, XII, July, 1895, 257.

[B 493, *part*, C 457, *part*, R 497, *part*, C 663, *part*.]

GEOG. DIST.—Arid region of southwestern United States, and southward into Mexico.

SUBGENUS **ASARCIA** SHARPE.

Asarcia SHARPE, Cat. Bds. Brit. Mus. XXIV, 1896, 86.

Type, *Parra variabilis* LINN. 1766 = *Fulica spinosa* LINN.

1758. (Cf. COUES, Auk, XIV, Jan. 1897, 88.)

The genus *Asarcia* SHARPE is accepted as a subgenus.

302d. ***Lagopus rupestris townsendi* ELLIOT.**

Townsend's Ptarmigan.

Lagopus rupestris townsendi ELLIOT, Auk, XIII, Jan. 1896, 26.

[B—, C—, R—, C—.]

GEOG. DIST.—Kyska and Adak Islands, Aleutian Chain.

302.1. ***Lagopus evermanni* ELLIOT.**

Evermann's Ptarmigan.

Lagopus evermanni ELLIOT, Auk, XIII, Jan. 1896, 25, pl. iii.

[B—, C—, R—, C—.]

GEOG. DIST.—Attu, one of the Aleutian Islands, Alaska.

SUBGENUS **BREWSTERIA** MAYNARD.

Brewsteria MAYNARD, Bds. East. N. Am. pt. 40 [1896],

691. Type, *Archibuteo ferrugineus* (LICHT.).

Accepted as a subgenus of *Archibuteo*.

375c.—***Bubo virginianus pacificus* CASSIN.**

Pacific Horned Owl.

Bubo virginianus var. *pacificus* CASS., Ill. Bds. Cal., Texas, etc., July, 1854, 178.

[B 48, *part*, C 317*b*, R 405*b*, *part*, C 464.]

GEOG. DIST.—Southern California (exact range not known).

394c. **Dryobates pubescens medianus** (SWAINS.).

Downy Woodpecker.

Picus (Dendrocopus) medianus SWAINS. in SWAINS. & RICH.
Faun. Bor.-Am. II, 1831, 308.

Dryobates pubescens medianus BREWSTER, Auk, Jan. 1897, 82.

[B 76, *part*, C 299, *part*, R 361, *part*, C 440, *part*.]

GEOG. DIST.—Middle and northern parts of eastern United States and northward.

No. 394, **Dryobates pubescens**, the Southern Downy Woodpecker, thus becomes restricted to the South Atlantic and Gulf States, from South Carolina to Florida and Texas. (Cf. BREWSTER, *l. c.*)

394d. **Dryobates pubescens nelsoni** OBERHOLSER.

Nelson's Downy Woodpecker.

Dryobates pubescens nelsoni OBERHOLSER, Proc. U. S. Nat.
Mus. XVIII, 1895, 549.

[B 76, *part*, C 299, *part*, R 361, *part*, C 440, *part*.]

GEOG. DIST.—Alaska and northern British America.

407. **Melanerpes formicivorus** (SWAINS.).

Ant-eating Woodpecker.

Picus formicivorus SWAINS. Phil. Mag. I, 1827, 439.

Melanerpes formicivorus BONAP. Consp. Av. I, 1850, 115.

[B 95, *part*, C 310, *part*, R 377, *part*, C 454, *part*.]

GEOG. DIST.—Western Texas, New Mexico, and Arizona, thence southward over the tablelands of Mexico.

(The numeration of Nos. 407 and 407*a* hereby becomes changed to 407*a* and 407*b* respectively.)

414a. **Colaptes chrysoides brunescens** ANTHONY.

Brown Flicker.

Colaptes chrysoides brunescens ANTHONY, Auk, XII, Oct.
1895, 347.

[B 99, *part*, C 313, *part*, R 379, *part*, C 458, *part*.]

GEOG. DIST.—Northern Lower California.

420c. ***Chordeiles virginianus sennetti*** (COUES).

Sennett's Nighthawk.

[*Chordeiles popetue*] *sennetti* COUES, Auk, V, Jan. 1888, 37.

Chordeiles virginianus sennetti BISHOP, Auk, XIII, April 1896,
134.

[B 115, *part*, C 267a, *part*, R 357a, *part*, C 400, *part*.]

GEOG. DIST.—Treeless region of the Great Plains, from the
Saskatchewan south to Texas.

498c. ***Agelaius phœniceus floridanus*** MAYNARD.

Florida Red-wing.

Agelaius phœniceus floridanus MAYNARD, Bds. East. N. Am.,
pt. 40 [1896], 689.

[B 401, *part*, C 212, *part*, R 261, *part*, C 316, *part*.]

GEOG. DIST.—Florida.

544.1. ***Ammodramus sanctorum*** COUES.

San Benito Sparrow.

Passerculus sanctorum COUES, Key N. Am. Bds. 2d ed. 1884,
364.

Ammodramus (*Passerculus*) *sanctorum* COUES, Auk, XIV, Jan.
1897, 92.

[B—, C—, R—, C—.]

GEOG. DIST.—San Benito Island, Lower California.

550c. ***Ammodramus maritimus macgillivrayi*** AUD.

Louisiana Seaside Sparrow.

Fringilla macgillivrayi AUD. Orn. Biog. II, 1834, 285; IV,
1838, 394, pl. ccclv.

Ammodramus maritimus macgillivrayi RIDGW. Man. N. Am.
Bds. 2d ed. 1896, 602.

[B—, C 165, *part*, R—, C 238, *part*.]

GEOG. DIST.—Coast of Louisiana, to coast of Texas in winter.

581j. ***Melospiza fasciata juddi*** BISHOP.

Dakota Song Sparrow.

Melospiza fasciata juddi BISHOP, Auk, XIII, April, 1896, 132.

[B—, C—, R—, C—.]

GEOG. DIST.—Turtle Mountain, and vicinity, North Dakota.

581k. ***Melospiza fasciata merrilli*** BREWSTER.

Merrill's Song Sparrow.

Melospiza fasciata merrilli BREWSTER, Auk, XIII, Jan. 1896,
46.

[B—, C—, R—, C—.]

GEOG. DIST.—Type locality, Fort Sherman, Idaho.

* 581.1. ***Melospiza insignis*** BAIRD.

Bischoff's Song Sparrow.

Melospiza insignis BAIRD, Trans. Chicago Acad. Sci. I, 1869,
319, pl. xxix, fig. 2.(Cf. RICHMOND, Auk, XII, Apr. 1895, 144. Also Check-List,
2d ed. 1895, 243.)585d. ***Passerella iliaca stephensi*** ANTHONY.

Stephens's Sparrow.

Passerella iliaca stephensi ANTHONY, Auk, XII, Oct. 1895, 348.

[B 376a, part, C—, R 235b, part, C 285, part.]

GEOG. DIST.—Mountains of southern California (type locality,
San Jacinto Mts.).593d. ***Cardinalis cardinalis floridanus*** RIDGW.

Florida Cardinal.

Cardinalis cardinalis floridanus RIDGW. Man. N. Am. Bds. 2d
ed. 1896, 606.

[B 390, part, C 203, part, R 242, part, C 299, part.]

GEOG. DIST.—Florida.

648a. **Compsothlypis americana usneæ** BREWSTER.

Northern Parula Warbler.

Compsothlypis americana usneæ BREWSTER, Auk, XIII, Jan.
1896, 44.

[B 168, *part*, C 58, *part*, R 88, *part*, C 93, *part*.]

GEOG. DIST.—New England, New York, and westward along the northern tier of States, and northward into the Maritime Provinces and Ontario, migrating southward beyond the United States in winter.

652b. **Dendroica æstiva rubiginosa** (PALL.).

Alaskan Yellow Warbler.

Motacilla rubiginosa PALLAS, Zoogr. Rosso-Asiat. I (1811?),
1831, 496.

Dendroica æstiva rubiginosa OBERHOLSER, Auk, XIV, Jan.
1897, 76.

[B 203, *part*, C 70, *part*, R 93, *part*, C 111, *part*.]

GEOG. DIST.—Alaska and British Columbia, southward through western United States in migration.

654a. **Dendroica cærulescens cairnsi** COUES.

Cairns's Warbler.

Dendroica cærulescens cairnsi COUES, World's Cong. on Orn.
of 1893, Nov. 1896, 138.

Dendroica cærulescens cairnsi COUES, Auk, XIV, Jan. 1897, 97.

[B 193, *part*, C 76, *part*, R 94, *part*, C 117, *part*.]

GEOG. DIST.—Higher parts of the Alleghanies, from Virginia to Georgia.

SUBGENUS **CHAMÆTHLYPIS** RIDGW.

Chamæthlypis RIDGW. Man. N. Am. Bds. 1887, 525. Type,
Geothlypis poliocephala BAIRD.

(Accidentally omitted from the Check-List, 2d ed., 1895.)

II. CHANGES OF NOMENCLATURE.

- 13a. **Fratercula arctica glacialis** (TEMME.) Check-List, 2d ed 1895, 5.

The first reference should be as in the original edition, *vis.*: *Mormon glacialis* "LEACH," TEMME. Man. d'Orn. 2d ed. II, 1820, 933. (Cf. STONE, Auk, XIII, Apr. 1896, 185; ALLEN, *ibid.* 189.)

89. **Puffinus major** FABER. This becomes

Puffinus gravis (O'REILLY).

Procellaria gravis O'REILLY, Voy. to Greenland, etc. 1818, 140, pl. 12, fig. 1.

Puffinus gravis SALVIN, Cat. Bds. Br. Mus. XXV, 1896, 373.

The name *gravis* O'REILLY (1818) has four years' priority over *major* FABER (1822).

93. **Puffinus gavia** (FORST.). This becomes

Puffinus opisthomelas COUES.

Puffinus opisthomelas COUES, Proc. Acad. Nat. Sci. Phila. 1864, 139, 144.

Considered as specifically distinct from *Puffinus gavia* (FORST.). (Cf. RIDGWAY, Man. N. Am. Bds. 2d ed. 1896, 60; SALVIN, Cat. Bds. Br. Mus. XXV, 1896, 380.)

- 114.1. **Sula gossi** GOSS. This will stand as

Sula nebouxii MILNE-EDWARDS.

Sula nebouxii MILNE-EDWARDS, Ann. Soc. Nat. Zool. 52, Ann. VI, Ser. T, XIII, 1882, No. 2-4, Art. 4, 37, pl. xiv.

The name *nebouxii* MILNE-EDWARDS has priority over *gossi* GOSS. (Cf. RIDGWAY, Man. N. Am. Bds. 2d ed. 1896, 584.)

GENUS **CLANGULA** LEACH (Check-List, 2d ed. p. 55).

This becomes

GENUS **HARELDA** STEPHENS.

Harelda STEPHENS (ex LEACH, MS.?) in Shaw's Gen. Zool. XII, pt. ii, 1824, 174. Type, *Anas glacialis* LINN. (1766=*A. hyemalis* LINN. 1758).

154. **Clangula hyemalis** LINN. hence becomes

Harelda hyemalis (LINN.).

Anas hyemalis LINN. S. N. ed. 10, I, 1758, 126.

Harelda hiemalis L. BREHM, Vogelfang, 1855, 386.

GENUS **GLAUCIONETTA** STEJNEGER (Check-List, 2d ed.
p. 54). This becomes

GENUS **CLANGULA** LEACH.

Clangula LEACH, in Ross's Voy. Discov. 1819, App. xlviii,
(ex GESNER). Type, *Anas clangula* LINN. (Cf. SALVADORI,
Cat. Bds. Br. Mus. XXVII, 1895, 376.)

151. **Glaucionetta clangula americana** (BONAP.) hence
becomes

Clangula clangula americana BONAP.

Clangula americana BONAP. Geog. & Comp. List, 1838, 58.

Clangula clangula americana A. O. U. COMM. MS.

152. **Glaucionetta islandica** (GMEL.) becomes

Clangula islandica (GMEL.).

Anas islandica GMEL. S. N. I, 1788, 541.

Clangula islandica BONAP. Cat. Met. Ucc. Eur. 1842, 74.

163. **Oidemia americana** SW. & RICH. The authority should
be SWAINS. Hence,

Oidemia americana SWAINS. The reference should
stand as follows:

Oidemia americana SWAINS. in SWAINS. & RICH. Faun. Bor.-
Amer. II, 1831, 450.

(Cf. STONE, Auk, XIII, Apr. 1896, 186, and ALLEN, *ibid.* 190.)

167. **Erismatura rubida** (WILS.). This becomes

Erismatura jamaicensis (GMEL.).

Anas jamaicensis GMEL. Syst. Nat. I, ii, 1788, 519.

Erismatura jamaicensis SALVAD. Cat. Bds. Br. Mus. XXVII,
1896, 445.

The name *Anas rubida* WILSON (1814) is antedated by *A. jamaicensis* GMELIN (1788).

SUBGENUS **STEGANOPUS** VIEILLOT (Check-List, 2d ed. p. 83).

This is raised to a full genus. No. 224 will hence stand as

224. **Steganopus tricolor** VIEILL

Steganopus tricolor VIEILL. Nouv. Dict. d'Hist. Nat. XXXII, 1819, 136.

SUBGENUS **SQUATAROLA** CUVIER (Check-List, 2d ed. p. 99).

This is raised to a full genus. Hence No. 270 will stand as

270. **Squatarola squatarola** (LINN.).

Tringa squatarola LINN. S. N. ed. 10, 1758, 149.

Squatarola squatarola CUV. Règne Anim. I, 1817, 467.

[322.] **Geotrygon martinica** (LINN.). This becomes
Geotrygon chrysia BONAP.

Geotrygon chrysia BONAP. Consp. Av. II, 1854, 72.

Geotrygon martinica (LINN.) is restricted to the Lesser Antilles. *G. chrysia*, a very different species, occurs in Cuba, Haiti, the Bahamas, and on the Florida Keys. (Cf. SALVADORI, Cat. Bds. Br. Mus. XXI, 1893, pp. 570-572.)

394b. **Dryobates pubescens oreæcus** BATCH. This becomes
Dryobates pubescens homorus (CAB.).

Dryobates homorus CABANIS, Mus. Hein. pt. iv, 1863, 65.

Dryobates pubescens homorus RIDGW. Man. N. Am. Bds. 2d ed. 1896, 597.

422. **Cypseloides niger** (GMEL.). This becomes

Cypseloides niger borealis (KENNERLY).

Cypselus borealis KENNERLY, Proc. Ac. Nat. Sci. Phila. 1857, 202.

Cypseloides niger borealis DREW, Auk, II, Jan. 1885, 17.

[B 108, part, C 270, R 350, part, C 404.]

GEOG. DIST.—Rocky Mountain region (Colorado), west to the Pacific coast; north to British Columbia, and south to Lower California, Mexico, and Costa Rica.

453. **Myiarchus mexicanus** (KAUP). The second reference under this species should be

Myiarchus mexicanus LAWRENCE, Ann. Lyc. N. Y. IX, May, 1869, 202 (as in the orig. ed. of the Check-List). (Cf. COUES, Auk, XIV, Jan. 1897, 92.)

- * 465 **Empidonax acadicus** (GMEL.).

Acadian Flycatcher.

This has become

Empidonax virescens (VIEILL.).

Green-crested Flycatcher.

(Cf. BREWSTER, Auk, XII Apr. 1895, 157. Also Check-List, 2d ed. 1895, p. 188.)

- * 466. **Empidonax pusillus** (SWAINS.).

Little Flycatcher.

This has become

Empidonax traillii (AUD.).

Traill's Flycatcher.

(Cf. BREWSTER, Auk, XII, Apr. 1895, 159. Also Check-List, 2d ed. 1895, 188.)

- * 466a. **Empidonax pusillus traillii** (AUD.).

Traill's Flycatcher.

This has become

Empidonax traillii alnorum BREWST.

Alder Flycatcher.

(Cf. BREWSTER, Auk, XII, Apr. 1895, 161. Also Check-List, 2d ed. 1895, 188.)

- 474j. **Otocoris alpestris pallida** TOWNSEND. The authority should be DWIGHT, and the reference changed to

Otocoris alpestris pallida DWIGHT (ex TOWNS. MS.), Auk, VII, Apr. 1890, 154. (Cf. STONE, Auk XIII, Apr. 1896, 185, and ALLEN, *ibid*, 188.)

- 498a. **Agelaius phoeniceus sonoriensis** RIDGW. This becomes

Agelaius phoeniceus longirostris (SALVAD.).

Agelaius longirostris SALVAD. Atti del Reale Accad. Sci. Torino, IX, Apr. 26, 1874, 632.

Agelaius phoeniceus longirostris RIDGW. Man. N. Am. Bds. 2d ed. 1896, 370.

The name *longirostris* SALVADORI (1874) antedates *sonoriensis* RIDGWAY (1887). (Cf. RIDGWAY, *l. c.*)

499. **Agelaius gubernator** (WAGL.). This becomes

Agelaius gubernator californicus NELSON.

Agelaius gubernator californicus NELSON, Auk, XIV, Jan. 1897, 59.

[B 402, *part*, C 212a, *part*, R 216a, *part*, C 317, *part*.]

- 567b. **Junco hyemalis shufeldti** COALE. This becomes

Junco hyemalis connectens COUES.

Junco hiemalis connectens COUES, Key N. Am. Bds. 2d ed. 1884, 378 (and later eds.); Auk, XIV, Jan. 1897, 94. (Cf. COUES, Auk, *l. c.*)

568. **Junco annectens** BAIRD.

Pink-sided Junco.

- 568.1. **Junco ridgwayi** MEARNs.

Ridgway's Junco.

Junco ridgwayi MEARNs proves to be a synonym of *Junco annectens* BAIRD, but not the *J. annectens* of recent authors and of the Check-List, while the species commonly known as *J. annectens* requires a new name. (Cf. RIDGWAY, Auk, XIV, Jan. 1897, 94.)

Hence Nos. 568 and 568.1 will stand as follows :

568. **Junco mearnsi** RIDGWAY.

Pink-sided Junco.

568.1. **Junco annectens** BAIRD.

Ridgway's Junco.

GENUS **ARREMONOPS** RIDGWAY.

Arremonops RIDGW. Man. N. Am. Bds. 2d ed. 1896, 434.
Type, *Embernagra rufivirgata* LAWR.

586. **Embernagra rufivirgata** LAWR. hence becomes
Arremonops rufivirgata (LAWR.).

Embernagra rufivirgata LAWR. Ann. Lyc. N. Y. V, May, 1851,
112, pl. v, fig. 2.

Arremonops rufivirgata RIDGW. Man. N. Am. Bds. 2d ed.
1896, 435.

GENUS **OREOSPIZA** RIDGWAY.

Oreospiza RIDGW. Man. N. Am. Bds. 2d ed. 1896, 439.
Type, *Fringilla chlorura* AUD.

590. **Pipilo chlorurus** (TOWNS. = AUD.) hence becomes
Oreospiza chlorura (AUD.).

Fringilla chlorura AUD. Orn. Biog. V, 1839, 336.

Oreospiza chlorura RIDGW. Man. N. Am. Bds., 2d ed., 1896,
605.

The authority for the specific name should be AUDUBON and not TOWNSEND, in accordance with the rule followed by the Committee in other similar cases in the revised edition of the Check-List. (Cf. STONE, Auk, XIII, Apr. 1896, 185; ALLEN, *ibid.* 188).

594. **Pyrhuloxia sinuata** BONAP. This becomes

594a. **Pyrhuloxia sinuata texana** RIDGW.

Texas **Pyrhuloxia**.

Pyrhuloxia sinuata texana RIDGW. Auk, XIV, Jan. 1897,

[B 389, *part*, C 202, *part*, R 243, *part*, C 298, *part*.]

GEOG. DIST.—Southern border of the United States, from the valley of the Lower Rio Grande, south to San Luis Potosi, Puebla, etc. North casually to the coast of Louisiana.

594*a*. **Pyrrhuloxia sinuata beckhami** RIDGW. This becomes

594. **Pyrrhuloxia sinuata** BONAP.

Arizona Pyrrhuloxia.

The references stand as at present under No. 594, but the concordance and GEOG. DIST. require to be changed, as follows:

[B 389, *part*, C 202, *part*, R 243, *part*, C 298, *part*.]

GEOG. DIST.—Southern Arizona, east to western Texas, and south into western Mexico.

GENUS **Habia** REICH. (Check-List, 2d ed. p. 250). This becomes

GENUS **ZAMELODIA** COUES.

Zamelodia COUES, Bull. Nutt. Orn. Club, V, Apr. 1880, 98.

Type, *Loxia ludoviciana* LINN. (Cf. COUES, Auk, XIV, Jan. 1897, 39-42.)

Hence the following:

595. **Habia ludoviciana** (LINN.). This becomes

Zamelodia ludoviciana (LINN.).

Loxia ludoviciana LINN. S. N. ed. 12, I, 1766, 306.

Zamelodia ludoviciana COUES, Bull. Nutt. Orn. Club, V, Apr. 1880, 98.

596. **Habia melanocephala** (SWAINS.). This becomes

Zamelodia melanocephala (SWAINS.).

Guiraca melanocephala SWAINS. Philos. Mag. I, 1827, 438.

Zamelodia melanocephala COUES, Bull. Nutt. Orn. Club, V, Apr. 1880, 98.

645. **Helminthophila ruficapilla** (WILS.). This becomes

Helminthophila rubricapilla (WILS.).

Sylvia rubricapilla WILS Amer. Orn. VI, 1812, 15.

Helminthophila rubricapilla FAXON, Auk, XIII, July, 1896, 264.

Sylvia rubricapilla WILS. (1810), is preoccupied by *Sylvia ruficapilla* LATH. (1790) = *Dendroica ruficapilla* (LATH.). (Cf. FAXON, l. c.)

645a. ***Helminthophila ruficapilla gutturalis*** RIDGW. hence becomes

Helminthophila rubricapilla gutturalis (RIDGW.).

Helminthophaga ruficapilla var. *gutturalis* RIDGW. in Hist. N. Am. Bds. I, Jan. 1874, 191.

Helminthophila rubricapilla gutturalis FAXON, Auk, XIII, July, 1896, 264.

658. ***Dendroica cærulea*** (WILS.). This becomes
Dendroica rara WILS.

Sylvia rara WILSON, Am. Orn. III, 1811, 119, pl. 27, fig. 2.

Dendroica rara RIDGWAY, Auk, XIV, Jan. 1897, 97.

Sylvia cærulea WILSON (1811) is preoccupied by *Sylvia cærulea* LATHAM (1790) = *Poliophtila cærulea* (LINN.). (Cf. RIDGWAY, l. c.)

*714. ***Heleodytes affinis*** (XANTUS). This has become

713b. ***Heleodytes brunneicapillus affinis*** (XANTUS).

(Cf. ANTHONY, Auk, XII, July, 1895, 280. Also Check-List, 2d ed. 1895, 296).

719b. ***Thryothorus bewickii bairdi*** (SALV. & GODM.). This becomes

Thryothorus bewickii leucogaster BAIRD.

Thryothorus bewickii leucogaster BAIRD, Rev. Am. Bds. Aug. 1864, 127.

Changed on the ground that a prior *Troglodytes leucogaster* GOULD (1836 = *Hemiura leucogastra*) does not preclude the use of the name *leucogaster* in the genus *Thryothorus*. (Cf. COUES, Auk, XIII, Oct. 1896, 2345.)

- 726a. ***Certhia familiaris alticola*** MILLER. This becomes
Certhia familiaris albescens (BERLEPSCH).

Certhia mexicana albescens BERLEPSCH, Auk, V, Oct. 1888,
450.

Certhia familiaris albescens OBERHOLSER, Auk, XIII, Oct. 1896,
315.

739. ***Parus cinctus obtectus*** (CAB.). This becomes
Parus cinctus alascensis (PRAZAK).

Pecila cincta alascensis PRAZAK, Orn. Jahrb. VI, March-April,
1895, 92.

- 766a. ***Sialia sialis azurea*** (SWAINS.). The authority should be
changed to BAIRD, as given in the first reference under this
name in the Check-List, 2d ed. p. 322. (But "1884" in the
reference should be 1864.) (Cf. RIDGWAY, Man. N. Am. Bds.
1887, 581.)

III.—CONSIDERED AS NOT ENTITLED TO RECOGNITION.

Callipepla gambelii deserticola STEPHENS, Auk, XII, Oct.
1895, 371.

Considered as not separable from *Callipepla gambelii* (GAMB.).

Bubo virginianus occidentalis STONE, Auk, XIII, Apr.
1896, 155.

Not admitted, on the ground that the type, from Mitchell
County, Iowa, proves to be an intergrade between *B. virginianus*
and *B. v. arcticus*, and not the interior form which Mr. Stone in-
tended to recognize.

Melanerpes formicivorus aculeatus MEARNs, Auk, VII,
July, 1890, 249. (Cf. Third Supplement A. O. U. Check-List, in
Auk, Jan. 1891, 88, and RIDGWAY, Man. N. Am. Bds. 2d ed. 1896,
597). This is now referred to *Melanerpes formicivorus* (SWAINS.).
(Cf. *antea*, p. 120.)

Otocoris alpestris hoyti BISHOP, Auk, XIII, April, 1896, 130.

Considered as not sufficiently distinct from *Otocoris alpestris leucolæma* (COUES).

Junco danbyi COUES, Nidologist, III, Oct. 1895, 14.

Proves to have been based on immature examples of *Junco aikeni* RIDGW. (Cf. COUES, Auk, XIV, Jan. 1897, 94.)

Minus [*sic*] **carolinensis grisifrons** [*sic*] MAYNARD, Bds. East. N. Am. pt. 40 [1896], 710.

The alleged character of gray frontlet is not distinctive, being of frequent occurrence in *Galeoscoptes carolinensis* from any locality.

IV. PROPOSED CHANGES OF NOMENCLATURE REJECTED.

92. **Puffinus auduboni** FINSCH, *vs.* **Puffinus obscurus** (GMEL.). Cf. SALVIN, Cat. Bds. Br. Mus. XXV, 1896, 382.

Change not required, the two names representing, in the opinion of the Committee, two sufficiently distinct birds.

Genus **Aythya** BOIE, *vs.* **Nyroca** FLEMING. Cf. SALVADORI, Cat. Bds. Br. Mus. XXVII, 1895, 334.

Aythia is rejected by SALVADORI because not defined.

Genus **Actitis** ILLIGER, 1811, *vs.* **Tringoides** BONAP. 1831. Cf. SHARPE, Cat. Bds. Br. Mus. XXIV, 1896, 456.

The type of *Actitis* is, by elimination, *Tringa hypoleucos* LINN., which is also the type of *Tringoides*, of much later date.

236. **Tringa couesi** (RIDGW.), *vs.* **Arquatella maritima couesi** (RIDGW.). Cf. SHARPE, *l. c.*, 583.

243a. **Tringa alpina pacifica** COUES, *vs.* **Tringa americana** (CASSIN). Cf. SHARPE, Cat. Bds. Br. Mus. XXIV, 1896, 608.

Tringa alpina, var. *americana* CASSIN (1858) is antedated by *Tringa americana* BREHM (1855 = *Tringa fuscicollis* VIEILL.).

374a. **Megascops flammeola idahoensis** MERRIAM *vs.* **Megascops idahoensis**. Cf. WM. PALMER, Nidologist, III, May, 1896, 103.

After careful reconsideration of the case, it was decided not to change the status of the bird as now recognized in the Check-List.

375 a. **Bubo virginianus subarcticus** (HOY).

This proves to be a synonym of *Bubo virginianus arcticus* (SWAINS.). (Cf. STONE, Auk, XIII, Apr. 1896, 153-156.)

378a. **Speotyto cunicularia floridana** RIDGW. *vs.* **Speotyto floridana**. Cf. WM. PALMER, Auk, XIII, April, 1896, 108.

An examination of a large amount of material from Florida and from the central and western parts of North America shows that while the Florida form, as at present known, is geographically isolated from that of the Great Plains and the western United States at large, the differences between the two forms are so slight and inconstant that the relationship of the Florida form to the western one is most satisfactorily expressed by the use of a trinomial, as in the Check-List.

Genus **Lucar** COUES *ex* BARTRAM (Cf. COUES, Auk, XIV, Jan. 1897, 97.)

Rejected as being not only practically a *nomen nudum*, but as debarred under Canons XLIV and XLV of the A. O. U. Code, which require that names shall be identifiable by the contemporary literature of the subject.

Many proposed changes of names not here formally treated are covered by the following resolution, adopted by the Committee at its session in Cambridge, Nov. 13, 1896.

“Resolved: That changes of names from those adopted in the Check-List, due to taking the 12th instead of the 10th edition of Linnæus’s ‘Systema Naturæ’ as the starting point for the law of priority, do not require consideration by this Committee.”

This has especial relation to cases occurring in Vols. XXIV, XXV, and XXVII of the ‘Cat. Bds. Brit. Mus.’

V. CASES DEFERRED.

86a. *Fulmarus glacialis minor* (KJÆRB.) vs. *Fulmarus glacialis*. Cf. SALVIN, Cat. Bds. Brit. Mus. XXV, 1896, 426.

86b. *Fulmarus glacialis glupischa* STEJN. vs. *Fulmarus glupischa*. Cf. SALVIN, *t. c.* 427.

86c. *Fulmarus glacialis rodgersi* (CASS.) vs. *Fulmarus rodgersi*. Cf. SALVIN, *t. c.* 427.

Fulmarus glacialis columba ANTHONY, Auk, XII, 1895, 372.

85. *Puffinus borealis* CORY vs. *Puffinus kuhli* (BOIE). Cf. SALVIN *t. c.* 375.

94. *Puffinus stricklandi* RIDGW. vs. *Puffinus griseus* (GMEL.). Cf. SALVIN, *t. c.* 386.

148. *Aythya marila nearctica* STEJN. vs. *Aythya marila* (LINN.). Cf. BISHOP, Auk, XII, July, 1895, 293.

Oidemia carbo (PALLAS). Reported as occurring in Alaska. Cf. SALVADORI, Cat. Bds. Br. Mus. XXVII, 1895, 412.

277a. *Ægialitis meloda circumcincta* RIDGW. vs. *Ægialitis meloda* (ORD). Cf. SHARPE, Cat. Bds. Br. Mus. XXIV, 1896, 294.

Speotyto cunicularia obscurus STEPHENS, Auk, XII, Oct. 1895, 372.

Dryobates villosus montanus ANTHONY, Auk, XIII, Jan. 1896, 32.

While this subspecies is admissible, the tenability of the name *montanus* is in question.



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HOYT, WILLIAM ADAMS, North Brookfield, Mass.....	1896
HOYT, WILLIAM H., Stamford, Conn.....	1888
HUBBARD, Mrs. SARA A., 39 33rd St., Chicago, Ill.....	1891
HUGHES, Dr. WILLIAM E., 3726 Baring St., Philadelphia, Pa.....	1891
HULL, WALTER B., Box 47, Milwaukee, Wis.....	1889
HUNN, JOHN T. SHARPLESS, Plainfield, N. J.....	1895
HUNTER, Miss SUSAN MORRISON, Newport, R. I.....	1894
HVOSLEF, Dr. J. C., Lanesboro, Minn.....	1885

INGALLS, CHARLES E., East Templeton, Mass.....	1885
INGERSOLL, ALBERT M., 818 5th St., San Diego, Cala.....	1885
INGERSOLL, JOSEPH CARLETON, Bowie, Md.....	1895
INGRAHAM, D. P., Beulah, Colo.....	1889
IRVING, JOHN, 550 Park Ave., New York City.....	1894
ISHAM, C. B., Am. Mus. Nat. Hist., New York City.....	1891
JACKSON, THOMAS H., West Chester, Pa.....	1888
JACOBS, J. WARREN, Waynesburg, Pa.....	1889
JAMES, HOWARD K., Rockville, Conn.....	1888
JEFFRIES, WILLIAM AUGUSTUS, 78 Devonshire St., Boston, Mass.....	1883
JESURUN, DR. MORTIMER, Douglas, Wyoming.....	1890
JOB, REV. HERBERT K., North Middleboro, Mass.....	1896
JOHNSON, ALBERT I., Des Moines, Iowa.....	1885
JOHNSON, A. W., Upper Lake, Lake Co., Cala.....	1893
JOHNSON, EVERETT EDWIN, East Hebron, Me.....	1896
JOHNSON, FRANK E., Parkville, Kings Co., N. Y.....	1888
JOHNSON, JAMES HOWARD, Mansfield, Mass.....	1894
JOHNSON, WALTER A., Galesburg, Ill.....	1895
JOHNSON, WM. S., Boonville, N. Y.....	1893
JOHNSTON, CHARLES HAVEN LADD, Cambridge, Mass.....	1894
JONES, LYND, College Museum, Oberlin, Ohio.....	1888
JONES, PROF. MARCUS E., Salt Lake City, Utah.....	1890
JORDAN, A. H. B., Johnsonburg, Pa.....	1888
JORDAN, PROF. DAVID STARR, Stanford University, Cala.....	1885
JUDD, ELMER T., Cando, No. Dak.....	1895
JUDD, SYLVESTER D., Dept. of Agriculture, Washington, D. C.....	1893
JUSTICE, WILLIAM W., Jr., Germantown, Philadelphia, Pa.....	1895
KELKER, WILLIAM A., Harrisburg, Pa.....	1896
KELLOGG, VERNON L., Stanford University, Cala.....	1888
KENDALL, DR. W. C., U. S. Fish Commission, Washington, D. C.....	1886
KENNARD, FREDERIC HEDGE, Brookline, Mass.....	1892
KEYSER, REV. LEANDER S., Dayton, Ohio.....	1891
KIMBALL, R. E., 631 G St., N. W., Washington, D. C.....	1892
KING, GEORGE GORDON, Newport, R. I.....	1888
KIRKPATRICK, HARRY C., Meadville, Pa.....	1891
KIRKWOOD, FRANK C., P. O. Box 364, Baltimore, Md.....	1892
KNIGHT, ORA WILLIS, Bangor, Me.....	1893
KNOWLTON, F. H., U. S. Nat. Mus., Washington, D. C.....	1883
KOCH, PROF. AUGUST, Williamsport, Pa.....	1891
KOCH, FREDERIC W., Univ. Cala., Berkeley, Cala.....	1891
KOHN, GUSTAVE, 14 Carondelet St., New Orleans, La.....	1886
KOUMLY, REV. PIRMIN M., St. Benedict's College, Atchison, Kansas.....	1892
KRAEMER, FREDERICK L., Box 198, Williamsport, Pa.....	1893
KROM, STEPHEN ARTHUR, Plainfield, N. J.....	1894
KUMLIEN, LUDWIG, Milton, Wis.....	1895
LADD, SAMUEL B., West Chester, Pa.....	1889

LAHEE, EUGENE H., Alton, Ill.....	1893
LANO, ALBERT, Aitkin, Minn.....	1890
LANTZ, Prof. D. E., State Agl. College, Manhattan, Kansas.....	1885
LAWRENCE, HIRAM V., 203 Bedford Ave., Brooklyn, N. Y.....	1895
LAWRENCE, ROBERT B., Flushing, N. Y.....	1883
LAWRENCE, ROBERT HOR, 45 William St., New York City.....	1890
LEMMON, WILLIAM P., Englewood, N. J.....	1896
LEUTLOFF, HERMAN C. A., 611 E. 136th St., New York City.....	1896
LEWIS, WILLIAM H., Pawtucket, R. I.....	1890
LINSKILL, DAVID J., Plymouth, Pa.....	1891
LONG, H. B., Worcester, Mass.....	1889
LOOMIS, JOHN A., Paint Rock, Concho Co., Texas.....	1887
LORING, J. ALDEN, Dept. of Agriculture, Washington, D. C.....	1889
LOWE, WILLOUGHBY P., Goodpasture, Colo.....	1893
LUHRMAN, JOHN, Jr., 158 Pacific Ave., Jersey City, N. J.....	1893
LUSK, RICHARD D., Tucson, Ariz.....	1894
MACDOUGALL, GEO. R., 112 Wall St., New York City.....	1890
MACKAY, Dr. A. H., Halifax, Nova Scotia.....	1885
MACKAY, GEORGE H., Nantucket, Mass.....	1890
MACOUN, Prof. JOHN, Geol. and Nat. Hist. Surv., Ottawa, Ontario.....	1883
MAGUIRE, Dr. J. R., Lewistown, Ill.....	1896
MAILLIARD, JOHN W., 323 California St., San Francisco, Cal.....	1895
MAILLIARD, JOSEPH, San Geronimo, Cal.....	1895
MAITLAND, ROBERT L., 10 E. 35th St., New York City.....	1889
MALI, CHARLES M., 93 Willow St., Brooklyn, N. Y.....	1889
MARCY, Prof. OLIVER, Evanston, Ill.....	1892
MARSH, DANIEL J., Springfield, Mass.....	1894
MASON, EDWARD CAMPBELL, 76 Johnsons Park, Buffalo, N. Y.....	1888
MASTERMAN, ELMER ELLSWORTH, New London, Ohio.....	1895
MAXON, WILLIAM RALPH, 132 Main St., Oneida, N. Y.....	1894
MAY, FRANK DWIGHT, Jr., 17 Huntington St., Hartford, Conn.....	1894
MAYNARD, COLTON, 1407 15th St., N. W., Washington, D. C.....	1895
MCCOOK, PHILIP JAMES, Cambridge, Mass.....	1895
MCCORMICK, LOUIS M., Glen Island, N. Y.....	1892
MCGREGOR, R. C., Palo Alto, Cal.....	1889
MCILHENNY, EDWARD AVERY, Avery, La.....	1894
MCKENZIE, PETER, 4492 St. Catharine St., Montreal, Can.....	1896
MCLAIN, ROBERT BAIRD, Palo Alto, Cal.....	1893
MELZER, JAMES P., Milford, N. H.....	1891
MERRIAM, Miss FLORENCE A., 1919 16th St., N. W., Washington, D. C.....	1885
MERRILL, HARRY, Bangor, Maine.....	1883
METCALFE, WILLIAM C., 21 Cortlandt St., New York City.....	1886
MILLER, GERRIT SMITH, Jr., Peterboro', N. Y.....	1886
MILLER, HARRY EDWARD, Derby Conn.....	1892
MILLER, JAMES HENRY, Lowville, N. Y.....	1894
MILLER, Mrs. OLIVE THORNE, 628 Hancock St., Brooklyn, N. Y.....	1887

MILLER, WALDRON DEWITT, Plainfield, N. J.....	1896
MILLS, R. WALTER, Webster Groves, Mo.....	1893
MITCHELL, WALTON I., 534 Summit Ave., St. Paul, Minn.....	1893
MOORE, J. PERCY, Univ. of Pa., Philadelphia, Pa.....	1886
MORCOM, G. FREAN, 330 So. Broadway, Los Angeles, Cala.....	1886
MORISON, GEORGE ABBOT, 34 Shepard St., Cambridge, Mass.....	1896
MORRIS, GEORGE SPENCER, Olney, Philadelphia, Pa.....	1887
MORRIS, ROBERT O., Springfield, Mass.....	1888
MORRISON, GEORGE A., Fox Lake, Wis.....	1891
MUMMERY, WALTER S., Flint, Mich.....	1895
MURDOCH, JOHN, Rock, Mass.....	1883
NACHTRIEB, Prof. HENRY F., Univ. of Minn., Minneapolis, Minn....	1892
NASH, H. W., Pueblo, Colorado.....	1892
NEAL, ALBERT EDWARD, 98 Exchange St., Portland, Me.....	1896
NEAL, HERBERT VINCENT, Brookline, Mass.....	1894
NICHOLS, EUGENE C., Flushing, N. Y.....	1895
NICHOLS, J. M., Peabody, Mass.....	1890
NORRIS, GUY BRUNAUGH, Garden City, Kansas.....	1894
NORRIS, Rev. JAMES AVERY, Hastings-on-Hudson, N. Y.....	1894
NORRIS, J. PARKER, 723 Walnut St., Philadelphia, Pa.....	1886
NORTON, ARTHUR H., Westbrook, Maine.....	1890
NORTON, ARTHUR HENRY WHITELEY, Hanover, N. H.....	1894
NORTON, RICHARD, Cambridge, Mass.....	1888
OBERHOLSER, HARRY C., Dept. of Agriculture, Washington, D. C....	1888
O'CONNOR, HALDEMAN, 25 No. Front St., Harrisburg, Pa.....	1896
O'NEIL, EDWARD, Sewickley, Allegheny Co., Pa.....	1893
ORTH, GEORGE S., 406 S. Hiland Ave., Pittsburgh, Pa.....	1892
OSBORN, CHASE SALMON, Sault Ste. Marie, Mich.....	1893
OSBORNE, JOHN LANG, Manchester, N. H.....	1894
OSBURN, Rev. WILLIAM, Nashville, Tenn.....	1890
OSGOOD, WILFRED H., Willcox, Cochise Co., Ariz.....	1893
OWEN, CHARLES C., East Orange, N. J.....	1896
OWEN, VIRGIL WILLIAMS, P. O. Box 774, Los Angeles, Cala.....	1894
PAGE, Mrs. ALICE WILSON, 9 Riedesel Ave., Cambridge, Mass.....	1896
PAINE, AUGUSTUS G., Jr., 47 W. 45th St., New York City.....	1886
PALMER, Dr. THEODORE S., Dept. of Agriculture, Washington, D. C....	1888
PALMER, WILLIAM, U. S. Nat. Mus., Washington, D. C.....	1888
PALMER, WILLIAM M., 515 W. 130th St., New York City.....	1896
PAPE, CHARLES WESLEY, Manhattan, Kansas.....	1896
PARK, J. T., Jackson, Miss.....	1890
PARKER, J. GRAFTON, Jr., 100 Washington St., Chicago, Ill.....	1894
PAYNE, E. B., Catlin, Ill.....	1896
PEABODY, Rev. P. B., St. Vincent, Minn.....	1891
PEABODY, WILLIAM RODMAN, Cambridge, Mass.....	1890
PEACOCK, WILLIAM F., Chico, Butte Co., Cala.....	1888
PENNOCK, CHARLES J., Kennett Square, Chester Co., Pa.....	1888

PERKINS, CHARLES E., Hartford, Conn.....	1888
PETERSON, J. P., West Denmark, Polk Co., Wis.....	1885
PHELPS, WILLIAM HENRY, Cambridge, Mass.....	1895
PHILLIPS, A. H., Princeton, N. J.....	1891
PIERCE, A. K., Renovo, Pa.....	1891
PIERS, HARRY, "Stanyan," Willow Park, Halifax, N. S.....	1891
POMEROY, HARRY KIRKLAND, P. O. Box 575, Kalamazoo, Mich.....	1894
POPENOE, Prof. E. A., Manhattan, Kan.....	1886
PORTER, LOUIS H., Yale Univ., New Haven, Conn.....	1893
POTTER, RAYMOND B., Nyack, N. Y.....	1895
POWERS, WILLIAM LINCOLN, Gardiner, Maine.....	1895
PRAEGER, WILLIAM E., Keokuk, Iowa.....	1892
PRATT, Rev. GEORGE B., 61 Laflin St., Chicago, Ill.....	1895
PREBLE, EDWARD A., Dept. of Agriculture, Washington, D. C.....	1892
PRENTISS, D. W., Jr., 1218 9th St., N. W., Washington, D. C.....	1890
PRICE, WILLIAM W., Stanford University, Cal.....	1893
PURDY, JAMES B., Plymouth, Mich.....	1893
RAINE, WALTER, 181 Bleeker St., Toronto, Ontario.....	1889
RALPH, Dr. WILLIAM L., 26 Court St., Utica, N. Y.....	1888
RANN, Mrs. MARY L., Manchester, Iowa.....	1893
RATHBUN, FRANK R., 424 Franklin St., Auburn, N. Y.....	1883
RATHBUN, SAMUEL F., Seattle, Wash.....	1893
RAWSON, CALVIN LUTHER, Norwich, Conn.....	1885
READ, ALBERT M., 1140 15th St., N. W., Washington, D. C.....	1895
REAGH, ARTHUR LINCOLN, 39 Maple St., West Roxbury, Mass.....	1896
REDINGTON, ALFRED POETT, Santa Barbara, Cal.....	1890
REED, J. HARRIS, Beverly, N. J.....	1890
REED, HOWARD S., 1320 Gaylord St., Denver, Colo.....	1894
RHOADS, CHARLES J., Bryn Mawr, Pa.....	1895
RHOADS, SAMUEL N., Haddonfield, N. J.....	1885
RICHARDSON, JOHN KENDALL, Wellesley Hills, Mass.....	1896
RICHARDSON, W. M., Am. Mus. Nat. Hist., New York City.....	1891
RICHMOND, CHARLES W., 705 9th St., N. W., Washington, D. C.....	1888
RICKER, EVERETT WILDER, Jamaica Plains, Mass.....	1894
RIDGWAY, JOHN L., U. S. Geol. Surv., Washington, D. C.....	1890
RIKER, CLARENCE B., Maplewood, N. J.....	1885
RIVES, Dr. WILLIAM C., 22 W. 33d St., New York City.....	1885
ROBBINS, LINVILLE WADSWORTH, Gardiner, Me.....	1895
ROBBINS, WILLIAM A., 178 Garfield Place, Brooklyn, N. Y.....	1888
ROBINS, JULIA STOCKTON, 114 S. 21st St., Philadelphia, Pa.....	1895
ROBERTS, GEORGE W., West Chester, Pa.....	1891
ROBERTS, W. F., 1421 G St., N. W., Washington, D. C.....	1888
RODDY, Prof. H. JUSTIN, Millersville, Pa.....	1891
ROOD, Mrs. E. IRENE, 552 Chestnut St., Chicago, Ill.....	1893
ROOSEVELT, FRANKLIN DELANO, Hyde Park, N. Y.....	1896
ROOSEVELT, Hon. THEODORE, Oyster Bay, Queens Co., N. Y.....	1888

ROTH, PAUL WAGNER, Greenville, Pa.....	1895
ROTZELL, Dr. W. E., Narberth, Pa.....	1893
ROWLAND, RUSSELL STURGIS, Ann Arbor, Mich.	1895
ROWLEY, JOHN, JR., Am. Mus. Nat. Hist., New York City.....	1889
ROZYCKI, STEPHEN, Navy Dept., Washington, D. C.....	1894
RUSSELL, WATERMAN S. C., Manchester-by-the-Sea, Mass.....	1896
RUSSELL, WILLIAM BLACK, Fiskdale, Mass.....	1893
SAGE, HENRY M., Albany, N. Y.....	1885
SARGENT, HARRY B., 41 W. 82d St., New York City.....	1892
SAVAGE, DAVID LEWIS, Salem, Iowa.....	1894
SAVAGE, JAMES, 134 Abbott St., Buffalo, N. Y.....	1895
SCHALER, JOHN, Stamford, Conn.....	1893
SCHRAGE, E. B., Pontiac, Mich.....	1895
SCHURR, THEODORE A., Pittsfield, Mass.....	1888
SCHWAB, Rev. LAWRENCE H., 101 Lawrence St., New York City....	1892
SCUDDER, BRADFORD A., Taunton, Mass.....	1893
SHARPLESS, ROBERT P., Elgin, Ill.....	1894
SHATTUCK, GEORGE CHEEVER, 135 Marlboro St., Boston, Mass....	1896
SHEARER, AMON R., Wallaceville, Chambers Co., Texas.....	1893
SHEPPARD, EDWIN, Acad. Nat. Sci., Philadelphia, Pa.....	1892
SHERRATT, W. J., 263 North 2d St., Philadelphia, Pa.....	1891
SHERRILL, W. E., Haskell, Texas.....	1896
SHIELDS, ALEXANDER M., Crocker Bldg., San Francisco, Cala....	1899
SHOEMAKER, FRANK H., Hampton, Iowa.....	1895
SHORES, Dr. E. I., West Bridgewater, Mass.....	1883
SHORT, ERNEST H., Chili, N. Y.....	1891
SHRYOCK, WILLIAM A., 823 N. Broad St., Philadelphia, Pa.....	1893
SILLOWAY, PERLEY MILTON, Rood House, Ill.....	1896
SIMPSON, R. B., Arches, West Va.....	1895
SKINNER, FRANCIS B., Rockville, Conn.....	1894
SLADE, JOHN A., 1134 Herkimer St., Brooklyn, N. Y.....	1888
SMALL, ALBERTO WILLIAM, Antrim, N. H.....	1895
SMALL, ERNEST WILLIAM, Monmouth, Me....	1895
SMITH, HORACE G., 2918 Lafayette St., Denver, Colo.....	1888
SMITH, Dr. HUGH M., 1248 New Jersey Ave., Washington, D. C....	1886
SMITH, ROBERT WINDSOR, Kirkwood, Ga.....	1895
SMITH, THEODORE H., Orange, N. J.....	1896
SMITH, S. SIDNEY, 59 Wall St., New York City.....	1888
SMYTH, Prof. ELLISON A., Jr., Agr. and Mech. Coll., Blacksburg, Va..	1892
SMYTH, HIRAM G., Locust Ave., Troy, N. Y.....	1896
SNYDER, WILL EDWIN, Beaver Dam, Wis.....	1895
SORNBORGER, JEWELL D., Cambridge, Mass.....	1888
SOUTHWICK, E. B., Arsenal Bldg., Central Park, New York City....	1888
SOUTHWICK, JAMES M., 27 Whitmarsh St., Providence, R. I.....	1896
SPAULDING, FRED. B., Lancaster, N. H.....	1894
SPELMAN, HENRY MUNSON, Cambridge, Mass.....	1883

SPRAGUE, JOHN C., 257 W. 74th St., New York City.....	1891
SPRATT, CHESMAN CHADWICK, Richmond, Maine.....	1894
STANTON, Prof. J. Y., Bates College, Lewiston, Me.....	1883
STEERE, JOSEPH H., Sault Ste. Marie, Mich.....	1894
STEPHENS, F., Witch Creek, San Diego Co., Cala.....	1883
STEPHENSON, Mrs. LOUISE MCGOWN, Helena, Ark.....	1894
STICKNEY, MYRON WILDER, 62 George St., Providence, R. I.....	1895
STORY, W. W., Harrisburg, Pa.....	1891
STONE, CLARENCE FREEDOM, Branchport, N. Y.....	1894
STONE, DWIGHT D., Lansing, N. Y.....	1891
STONEBURN, FRED H., Newark, N. J.....	1893
STREATOR, CLARK P., Dept. of Agriculture, Washington, D. C.....	1889
STRECKER, JOHN KERN, Jr., Waco, Texas.....	1894
STRONG, REUBEN M., Oberlin, Ohio.....	1889
STUDER, JACOB HENRY, 114 Fifth Ave., New York City.....	1888
STURTEVANT, EDWARD, Inst. of Tech., Boston, Mass.....	1896
SUTTON, GEORGE BYRON, Newark Valley, N. Y.....	1896
SWINBURNE, JOHN, Guernsey, England.....	1887
TALLEY, Prof. THOMAS WASHINGTON, Tallahassee, Fla.....	1896
TATLOCK, JOHN, Jr., Mutual Life Ins. Co., New York City.....	1887
TAYLOR, ALEXANDER O'DRISCOLL, 124 Bellevue Ave., Newport, R. I.....	1888
TAYLOR, H. H., 63 Park Place, Bridgeport, Conn.....	1893
TEST, Dr. FREDERICK CLEVELAND, Lafayette, Ind.....	1892
THAYER, ABBOTT H., Scarborough, N. Y.....	1896
THOMAS, JOHN, Sharon, Pa.....	1895
THOMPSON, ERNEST E., Tappan, N. Y.....	1883
THOMSON, Prof. GEORGE S., Walden, Colo.....	1892
THORNE, Capt. PLATTE M., 22d Inf. U. S. A., 161 Troup St., Rochester, N. Y.....	1885
TODD, LOUIS M., Calais, Me.....	1887
TODD, W. E. CLYDE, Dept. of Agriculture, Washington, D. C.....	1890
TOPPAN, GEORGE L., 294 Newbury St., Boston, Mass.....	1886
TORREY, BRADFORD, Wellesley Hills, Mass.....	1883
TOWNSEND, CHARLES H., U. S. Fish Comm., Washington, D. C.....	1883
TOWNSEND, WILMOT, Bay Ridge, N. Y.....	1894
TREAT, WILLARD E., Silver Lane, Conn.....	1885
TREMBLAY, Dr. JOSEPH EUCLIDE, Esquimaux Point, Quebec, Can.....	1895
TROMBLEY, JEROME, Petersburg, Mich.....	1885
TROTTER, Dr. SPENCER, Swarthmore College, Swarthmore, Pa.....	1888
TUTTLE, Dr. CARL, Berlin Heights, Ohio.....	1890
VAN CORTLANDT, Miss ANNE S., Croton-on-Hudson, N. Y.....	1885
VAN DENBURG, JOHN, Acad. Sci., San Francisco, Cala.....	1893
VAN SANT, Miss ELIZABETH, City Hall, Omaha, Neb.....	1896
VAN WINKLE, EDMUND, Vans Harbor, Mich.....	1894
VAUGHAN, CLIFFORD WHEATON, 47 W. 83d St., New York City.....	1894
VELIE, Dr. J. W., St. Joseph, Mich.....	1886

VICKERS, ERNEST W., Ellsworth, Ohio.....	1896
VILARO, Dr. JUAN, Tampa, Fla.....	1888
WALCOTT, ROBERT, 11 Waterhouse St., Cambridge, Mass.....	1893
WALES, EDWARD H., Hyde Park, N. Y.....	1896
WALKER, Dr. R. L., Carnegie, Pa.....	1888
WALL, EDWARD, San Bernardino, Cal.....	1894
WARREN, Dr. B. H., Dept. of Agriculture, Harrisburg, Pa.....	1885
WARREN, OSCAR BIRD, Palmer, Mich.....	1892
WATERMAN, WILLIAM, Hay Springs, Neb.....	1896
WATERS, EDWARD STANLEY, Holyoke, Mass.....	1894
WATKINS, L. WHITNEY, Manchester, Mich.....	1894
WEBB, WALTER F., Albion, N. Y.....	1891
WEEKS, DAVID FRANKLIN, Portland, Oregon.....	1894
WEIDMAN, JOE, Ames, Iowa.....	1893
WEST, JAMES A., Bloomington, Ill.....	1896
WEST, LEWIS H., Roslyn, Queens Co., N. Y.....	1887
WHITE, FRANCIS BEACH, Cambridge, Mass.....	1891
WHITAKER, WILLIAM LINCOLN, Cedar Grove, Philadelphia, Pa.....	1894
WHITMAN, Prof. CHARLES OTIS, Univ. of Chi., Chicago, Ills.....	1896
WHOLEY, W. N., 78 Grape St., Rochester, N. Y.....	1891
WICKS, M. L., Jr., Los Angeles, Cal.....	1890
WILBUR, ADDISON P., Canandaigua, N. Y.....	1895
WILCOX, T. FERDINAND, 115 W. 75th St., New York City.....	1895
WILDE, MARK L. C., Camden, N. J.....	1893
WILLIAMS, J. BICKERTON, 116 University St., Montreal, Can.....	1889
WILLIAMS, ROBERT S., Columbia Falls, Montana.....	1888
WILLIAMS, W. J. B., Holland Patent, N. Y.....	1893
WILSON, SIDNEY S., St. Joseph, Mo.....	1895
WILSON, WILLIAM EDWARD, 387 Olney St., Providence, R. I.....	1894
WINTLE, ERNEST D., 11 Hospital St., Montreal, Can.....	1887
WOOD, NELSON R., Smithsonian Institution, Washington D. C.....	1895
WOODRUFF, FRANK M., Acad. Sci., Lincoln Park, Chicago, Ill.....	1894
WOODRUFF, LEWIS B., 14 East 68th St., New York City.....	1886
WOODWORTH, Mrs. NELLY HART, St. Albans, Vt.....	1894
WORCESTER, Prof. DEAN C., Ann Arbor, Mich.....	1895
WORTHEN, CHARLES K., Warsaw, Ill.....	1891
WORTHINGTON, R. B., Dedham, Mass.....	1893
WORTHINGTON, WILLIS W., Shelter Island, Suffolk Co., N. Y.....	1889
WRIGHT, FRANK S., 51 Genesee St., Auburn, N. Y.....	1894
WRIGHT, Mrs. MABEL OSGOOD, Fairfield, Conn.....	1895
WRIGHT, Miss NORA GIRALDA, Olneyville, R. I.....	1896
WRIGHT, SAMUEL, Conshohocken, Pa.....	1895
YEATON, ARTHUR CHARLES, Deering, Me.....	1895
YORKE, Dr. F. HENRY, Foosland, Ill.....	1891
YOUNG, CURTIS CLAY, 395 Clermont Ave., Brooklyn, N. Y.....	1891

DECEASED MEMBERS.

ACTIVE MEMBERS.

Date of Death.

BAIRD, SPENCER FULLERTON	Aug. 19, 1887
GOSS, N. S.	March 10, 1891
HOLDER, JOSEPH B.	Feb. 28, 1888
JEFFRIES, JOHN AMORY	March 26, 1892
WHEATON, JOHN M.	Jan. 28, 1887

HONORARY MEMBERS.

BURMEISTER, HERMANN	May 1, 1892
GUNDLACH, JUAN	March 14, 1896
GURNEY, JOHN HENRY	April 20, 1890
HUXLEY, THOMAS H.	June 29, 1895
KRAUS, FERDINAND	Sept. 15, 1890
LAWRENCE, GEORGE N.	Jan. 17, 1895
PARKER, WILLIAM KITCHEN	July 3, 1890
PELZELN, AUGUST VON	Sept. 2, 1891
SCHLEGEL, HERMANN	Jan. 17, 1884
SEEBOHM, HENRY	Nov. 26, 1895
TACZANOWSKI, LADISLAS	Jan. 17, 1890

CORRESPONDING MEMBERS.

BALDAMUS, EDUARD	Oct. 30, 1893
BLAKISTON, THOMAS W.	Oct. 15, 1891
BOGDANOW, MODEST N.	March 4, 1888
HAAST, JULIUS VON	Aug. 15, 1887
HARGITT, EDWARD	March 19, 1895
HOMMEYER, E. F. VON	May 31, 1889
LYTTLETON, THOMAS, LORD LILFORD	June 17, 1896
MARSCHALL, A. F.	Oct. 11, 1887
MIDDENDORFF, ALEXANDER THEODOR VON	Jan. 28, 1894
PREJEVALSKI, N. M.	Oct. 20, 1887
PRYER, HARRY JAMES STOVIN	Feb. 17, 1888
SCHRENCK, LEOPOLD VON	Jan. 20, 1894
SEVERTZOW, N.	Feb. 8, 1885
STEVENSON, HENRY	Aug. 18, 1888
WHARTON, HENRY T.	Sept. —, 1895

ASSOCIATE MEMBERS.

ADAMS, CHARLES F.....	May 20, 1893
ALLEN, CHARLES SLOVER.....	Oct. 15, 1893
ATKINS, H. A.....	May 19, 1885
AVERY, WILLIAM CUSHMAN.....	March 11, 1894
BECKHAM, CHARLES WICKLIFFE.....	June 8, 1888
BOLLES, FRANK.....	Jan. 10, 1894
BREESE, WILLIAM L.....	Dec. 7, 1889
CAIRNS, JOHN S.....	June 10, 1895
CORNING, ERASTUS, JR.....	April 9, 1893
COE, W. W.....	April 26, 1885
ELLIOTT, S. LOWELL.....	Feb. 11, 1889
FAIRBANKS, FRANKLIN.....	April 24, 1895
GESNER, A. H.....	April 30, 1895
GOSS, BENJAMIN F.....	July 6, 1893
HOADLEY, FREDERIC H.....	Feb. 26, 1895
HOWLAND, JOHN SNOWDON.....	Sept. 19, 1885
JENKS, JOHN W. P.....	Sept. 27, 1894
JOUY, PIERRE LOUIS.....	March 22, 1894
KUMLIEN, THURE.....	Aug. 5, 1888
LINDEN, CHARLES.....	Feb. 3, 1888
MABBETT, GIDEON.....	Aug. 15, 1890
MARIS, WILLARD LORRAINE.....	Dec. 11, 1895
MINOT, HENRY DAVIS.....	Nov. 13, 1890
NICHOLS, HOWARD GARDNER.....	June 23, 1896
NORTHROP, JOHN I.....	June 26, 1891
PARK, AUSTIN F.....	Sept. 22, 1893
RAGSDALE, GEO. H.....	March 25, 1895
RICHARDSON, JENNESS.....	June 24, 1893
SLATER, JAMES H.....	Feb. —, 1895
SMALL, EDGAR A.....	April 24, 1884
SMITH, CLARENCE ALBERT.....	May 6, 1896
STOWE, W. H.....	March —, 1895
THURBER, E. C.....	Sept. 6, 1896
VENNOR, H. G.....	June 8, 1884
WILLARD, SAMUEL WELLS.....	May 24, 1887
WOOD, WILLIAM.....	Aug. 9, 1885



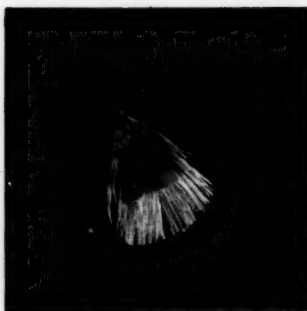
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COLOR-CHANGE IN THE BOBOLINK.